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ABSTRACT

A manual of quality control (QC) techniques is presented for financial aid and fiscal administrators. Steps for establishing, designing, implementing, and evaluating a QC program are outlined including the following: obtaining institutional commitments; developing the QC team; determining priorities for development; determining functions to be monitored; developing QC measures and standards; developing procedures for data collection; integrating standards and measures; determining output requirements; designing incentives to maximize program quality; identifying procedures for documentation; testing; communicating QC concepts to all parties; training the participants in the process; beginning the data collection, analysis, and monitoring activities; taking corrective actions; determining if the system is providing information needed to monitor QC; defining changes to data collection; revising the design of the system; and implementing program changes. Appendices include a 32-item annotated bibliography and reference materials on sampling techniques and specialized QC techniques for computerized systems. QC checklists and a sample QC plan for five federal student aid programs are included, along with flow charts on the delivery process for Pell grants, Guaranteed Student Loans, and campus-based aid. (SW)

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Office of Student Financial Assistance / U.S. Department of Education

STEVEN ZWILLINGER

ED254163

Winter 1984

The Institutional Quality Control Handbook

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
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QUALITY CONTROL IN THE INSTITUTIONAL DELIVERY OF STUDENT FINANCIAL ASSISTANCE

Division of Quality Assurance
Office of Student Financial Assistance
Office of Postsecondary Education
U.S. Department of Education

WINTER 1984

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CHAPTER 1
INTRODUCTION

The availability of student financial aid resources has grown tremendously since the National Defense Student Loan program was enacted back in 1958. At the Federal, state, local and institutional levels, many new programs have contributed many new dollars to the pool of assistance available to help students pay for postsecondary education. Along with this growth in resources has come a corresponding increase in the complexity of administering those programs, especially at the institutional level.

During this twenty-five year period, institutions have been called upon to absorb an increasing amount of administrative responsibility, not only for their own programs, but for Federal and state programs as well. The institutions have benefited from the increased availability of student aid funds, to be sure; some, perhaps many, would have been unable to survive during this time without such student support. Nonetheless, the administrative requirements have been a substantial management challenge to many postsecondary institutions.

This expansion of administrative responsibility has not occurred under optimal conditions. On both the Federal and state levels, late legislative actions have often provided agencies and institutions inadequate lead or implementation time to properly initiate new programs or revise old ones. Consequently, institutions frequently have been faced with unclear and/or untimely direction as to the proper management they are expected to provide. The complexity of the program requirements and their constantly changing nature have made administration difficult for responsible agencies and institutions alike. Thus, institutions have been forced to cope with ambiguity, sometimes conflicting instructions, and a growth pattern they have often been unable to parallel with sufficient personnel and other administrative support.

Through the growth years of Federal student aid, major emphasis was placed on developing methods for awarding financial aid equitably. This included methods for measuring financial need, for combining various forms of aid into an award package, and for actual disbursement of aid to students. Less emphasis was placed on methods to ensure the accuracy of student and parent-supplied data and methods to identify errors being made in the delivery of Federal aid to students. In this time of increased demand for student aid and uncertain prospects for greater taxpayer support in the future, the equitable distribution of aid and accuracy in determining awards become even more important. While accurate need analysis and consistent award packaging are two means for equitable distribution, other means of improving the accuracy of the information and the procedures used to deliver student aid are equally important.

Much has been done already to achieve, maintain, and improve the quality of student aid delivery. In spite of the problems identified earlier, some institutions have developed comprehensive management mechanisms to monitor and improve administrative performance. Many more have created an awareness of the importance of accurate and timely processing of financial aid applications, although the monitoring process is more informal and sporadic. Other institutions, however, have been so overwhelmed with the magnitude of the task that they have been unable to move beyond the immediate crises of day-to-day survival.

The Office of Student Financial Assistance, through its Division of Quality Assurance, also has been involved for the last several years in an ongoing effort to improve the effectiveness and efficiency of the delivery and management of the several Title IV student assistance programs for which it is responsible. Thus far, that effort has focused upon the internal operations of OSFA and the performance of its various contractors who provide a variety of processing services. There also has been an attempt to identify the degree to which the programs, especially Pell Grant, are subject to misreporting, data entry error, miscalculation, processing delays, and other forms of ineffective and inefficient operation.

One such initiative, the Pell Grant Quality Control Studies,[1] has identified

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[1] Basic Educational Opportunity Grant Quality Control Study. Macro Systems, Inc. and Westat, Inc. 1979.

Pell Grant Quality Control Study. Advanced Technology, Inc., and Westat, Inc. 1981 and 1983.

a number of application steps suffering from a lack of accuracy, either in the data submitted by the applicant and his/her family, or in the determination of eligibility and/or award amount on the part of postsecondary institutions. While the exact magnitude of the inaccuracies projected by those studies has been subject to debate, few would argue about the need for improvements in both applicant reporting and institutional administration.

OSFA has initiated a series of corrective actions designed to address some of these problems, including comprehensive editing of applicant-submitted data and opportunity for self-initiated correction of faulty information; use of multiple means of identifying applications with high likelihood of inaccurate data; increasing amounts of pre-award data verification, and extensive training opportunities for institutional personnel involved in the eligibility determination/award calculation/fund disbursement/account reconciliation process. These efforts to improve accuracy clearly have resulted in definitive improvements in the items or processes addressed by the actions.

This document is a further attempt to improve the administration of the Title IV student assistance programs. It should be seen as an extension of the training activities conducted by OSFA in recent years, especially those targeted to post-secondary financial aid administrators and fiscal officers. It is aimed at enhancing program management at the institutional level through systematic efforts at quality control.

WHAT IS QUALITY CONTROL?

The process by which the institution establishes and maintains procedures for monitoring the accuracy of its own activities is called quality control. Quality control (QC) is difficult to define precisely because it is applicable to such a wide range of activities. Quality control is a management tool to provide direct and immediate feedback concerning the quality of the product or services being generated. While it might be labeled "common sense" management, it is structured and continuous, rather than informal and sporadic. An effective QC program is an early warning system for the busy manager. Quality control is also a positive

attitude toward accuracy and other measures of performance on the part of all members of the operating unit, from top to botto n. It requires a commitment to excellence in all elements of the delivery process to be totally successful.

The essential element of any QC system,[2] in either an industrial or social service setting, is the capability for detecting, preventing, and correcting errors or any tendency toward errors that occur in an operational setting. Implicit in this definition is recognition that:

- It is essential to establish acceptable standards for the performance of the various activities within the system
- Standards must incorporate program law and regulatory requirements, as well as reflect the reasonable expectations of the consumer
- A system for monitoring the adherence to standards is necessary for the implementation of an effective QC system
- A QC system is incomplete unless it provides for the correction of error in a timely and cost-efficient manner
- The purpose of a QC system is to increase the efficiency and effectiveness of the delivery system by reducing costly errors and increasing the quality of services
- The benefits of such a system should outweigh the costs of operating it.

The QC cycle, illustrated in Figure 1-1, identifies necessary steps in the QC corrective actions process. The first five steps in the cycle require a thorough analysis of the delivery system and supporting information systems. The final four steps in the cycle require an understanding and a thorough analysis of the management and policy processes in order to develop decision mechanisms that will result in the implementation of corrective actions prior to the next cycle.

The QC system concept was initially introduced in the industrial sector as a means to detect flaws in the product which would prohibit that item from meeting an established industry standard. The QC system was intended to assist mangers in detecting, correcting and preventing product flaws. One method utilized a QC team

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[2]"QC system" is used throughout this manual to denote a process that can be either manual or automated. Appendix G provides additional information on automated QC systems.

THE QC CYCLE: FEEDBACK LOOP

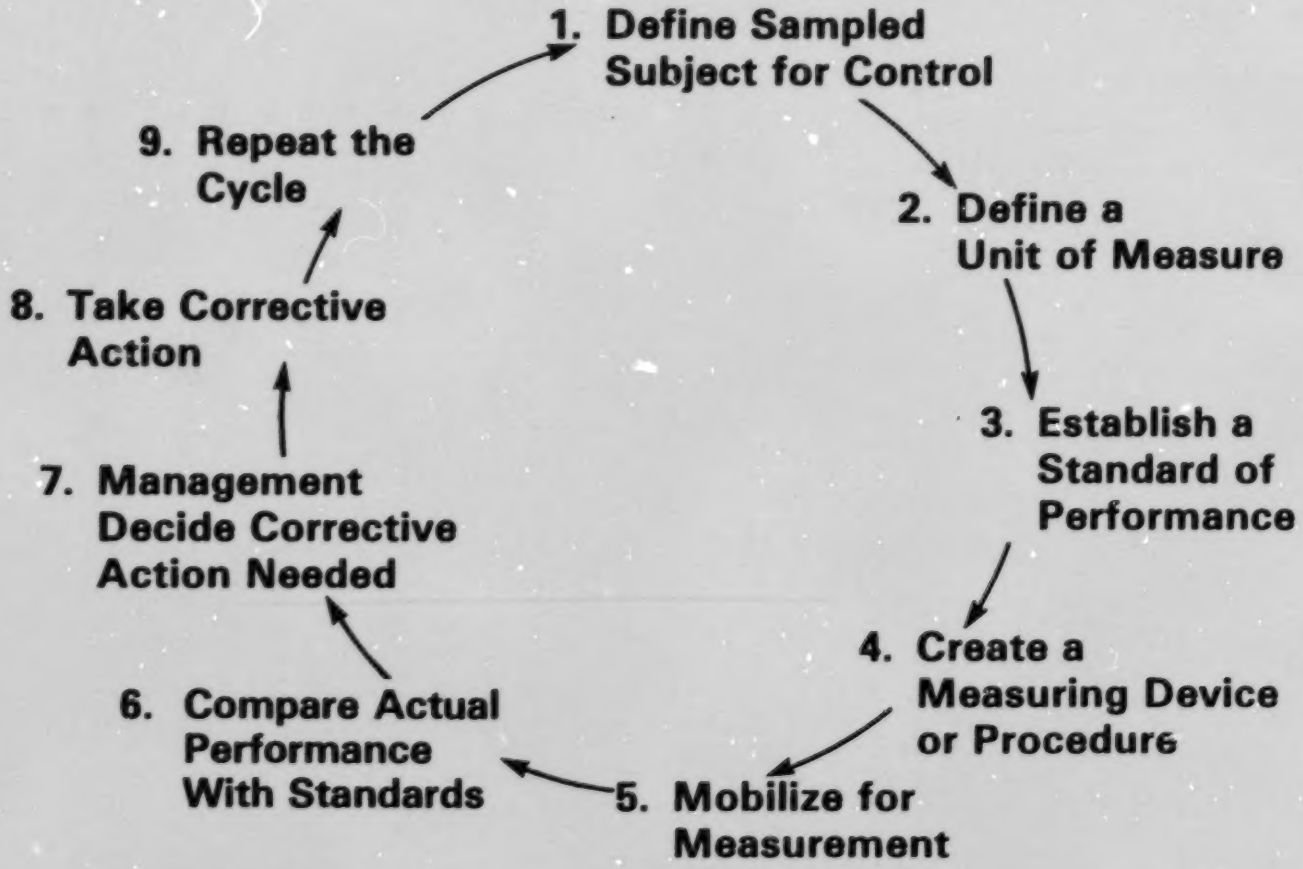

1. Define Sampled Subject for Control
2. Define a Unit of Measure
3. Establish a Standard of Performance
4. Create a Measuring Device or Procedure
5. Mobilize for Measurement
6. Compare Actual Performance With Standards
7. Management Decide Corrective Action Needed
8. Take Corrective Action
9. Repeat the Cycle

FIGURE 1-1
THE QC CYCLE: FEEDBACK LOOP

1-5

to check the finished product as it came off the assembly line to ascertain if the product met industry and company standards. Sophisticated QC systems provided a means to measure quality at each step in the production process. Products that failed to conform to the industry and company standards were analyzed by the QC team to determine the cause(s) of failure. With the information provided from failure analysis, managers were then able to develop methods for correcting production procedures or equipment and/or to improve production schedules. This has proved highly effective in reducing error in complicated manufacturing procedures such as those in high technology industries.

Service organizations responsible for delivering Federal financial assistance increasingly have been faced with charges of error in their programs as the number of recipients increased. In response to demands to reduce errors, many service organizations recently have adapted the industrial QC system concept to suit their needs. Aid to Families with Dependent Children (AFDC), the Food Stamp (FS) and Medicaid Programs are state-operated programs which are required by the Federal government to perform QC reviews. State QC reviews are monitored or validated by program regional offices. The Supplemental Security Income (SSI) program also has established a QC review system which is operated by Quality Assurance satellite offices throughout the country. Similarly, OSFA conducts or requires a number of quality assurance activities, such as the quality control studies mentioned earlier, the institutional/state-agency program reviews and contractor monitoring conducted by OSFA personnel, and the Title IV audits required of institutions.

QC in both the industrial and the service environments has become an essential management tool. The remainder of this chapter discusses QC in the institutional financial aid office environment and the benefits to be derived from developing and implementing a QC system.

THE ROLE OF QUALITY CONTROL IN THE INSTITUTIONAL FINANCIAL AID DELIVERY PROCESS

The effective management of student aid involves a wide scope of activities. These include the successful acquisition of funds, effective communication with students, receipt and control of documents, planning the distribution of funds, projecting enrollment and student need, developing need analysis and packaging

policies, and accounting for funds. Financial aid administrators spend a significant portion of time developing procedures for the smooth performance of these activities. Quality control can be implemented as a technique to monitor the adequacy and accuracy of procedures and services performed by the institutional offices responsible for aid delivery.

Several underlying goals form the basis of a financial aid operation: providing a service to students, obtaining the most accurate data possible for the distribution of funds, ensuring compliance with state and Federal financial aid law and regulations, and maintaining a high level of accuracy and efficiency in internal operations of the office. Carrying out financial aid functions to meet these goals usually involves handling large volumes of paper transactions (or automated data transactions in computerized operations), determining that applicants meet numerous criteria, and performing a series of calculations. Financial aid administration is highly labor-intensive; therefore, even the best of procedures leaves room for error.

Institutional financial aid operations may be measured both qualitatively and quantitatively. The aid director should be concerned with several areas of performance. Is correct information disseminated to students? Are applicants submitting correct financial data? Are eligibility criteria being checked consistently for every applicant? Are Pell Grant award calculations accurate? Is the processing of SARs, guaranteed loan applications, and institutional/Campus-Based aid applications timely? The fiscal officer must also be alert to quality control issues. Is the fiscal office recording disbursements accurately? Is the accounting office maintaining adequate records of income and expenditures? Is the loan office following due diligence procedures? While many managers are aware of the quantity and timeliness of work being performed in their office, they are not always aware of the work quality. Periodic evaluation of work can inform managers of the quality of work being performed. In addition, data verification procedures will improve the quality of applicant data used by a financial aid office.

In summary the essential purposes of quality control in the financial aid operation are to:

- Monitor the overall performance of student financial aid and fiscal office functions

- Ensure the accuracy of data used for distributing aid
- Monitor the accuracy of eligibility determination, award calculation, and disbursement
- Ensure that formalized procedures are carried out correctly
- Identify error-prone items and processes
- Provide administrators and managers with regular feedback on the quality and efficiency of their operations
- Provide a means for developing of corrective actions.

One might ask how quality control differs from the validation/verification activities now required for the Pell Grant program and proposed for the Campus-Based programs. Quality control is an integral part of the overall OSFA compliance strategy, which also includes applicant data validation/verification currently required by Title IV regulation. It is a means of checking the overall quality and accuracy of all work, not just the accuracy of applicant reporting, which is the only purpose of validation/verification. Except for the elements of validation/verification which are defined regulatorily, quality control is voluntary on the part of the institution. It is a means of identifying and correcting problems on the "front-end," before they become items of exception on a program review or audit report on the "back-end." In a sense, quality control is little different than the institutional self-evaluation process encouraged and supported by NASFAA, NACUBO, and other professional groups, except that it is most effective as an on-going activity rather than a periodic activity. Moreover, while self-evaluation is primarily a checklist of policy and procedure, the quality control process goes one step further to ascertain whether practice is consistent with policy and procedure. Identifying and solving problems internally before they become issues in resolving program review and audit exceptions are clearly less stressful approaches. It is an opportunity for the institution to improve its practices in a non-directive, non-punitive environment, before it is faced with the threat of financial liability as a result of an unfavorable program review or audit report.

In accordance with the traditional definitions of management theory, evaluation of performance conducted **internally** (including validation/verification) is **quality control.** Assessment of performance required **externally** (such as program

review, audit, and compliance review) is considered **quality assurance.** Each is conducted in a somewhat different timeframe, and may have different consequences, but both have a shared set of objectives, in this instance, improving the effectiveness and efficiency of delivering financial aid to eligible and deserving students.

A QC system designed to measure data and process integrity, which incorporates the above objectives, will contribute significantly to the effective management of student financial aid. It will enable the financial aid administrator and fiscal officer to prevent many problems before they occur, to identify problems as rapidly as possible, to eliminate problems through corrective actions, and to identify means of making the process more efficient and effective. The QC system will enable the institution to prevent program awarding and disbursing errors, as well as improve internal management techniques.

For the financial and fiscal aid offices, and for the institution as a whole, there are many benefits to be derived from improved QC. The benefits are perhaps most easily viewed from the perspective of what it avoids. However, it is also possible to consider what can be gained from implementing a QC system.

The benefits may include the following:

- Students receiving fair treatment and are likely to take their role in the process more seriously
- Student aid funds being properly managed
- Default rates on students loans being reduced
- Student records being well-maintained
- Ineligible students not receiving aid
- Student aid records being used to enhance the institution's student information system
- Student accounts management being enhanced
- Funding requests to the Federal government being processed without problems or delays resulting from institutional errors
- Positive reports being received from the OSFA Division of Certification and Program Review

- Audits proceeding smoothly
- The financial aid operation being considered exemplary by top administrators.

Such results depend on more than a QC system; an institutional commitment to quality is also necessary if the results of the quality control effort are to be utilized.

THE COST OF QUALITY CONTROL

Every institution in the country, with few exceptions, is in a period of cost containment, perhaps on an indefinite but certainly long-term basis. All requests for additional resources are being reviewed carefully and only essential expenditures are being approved in most institutions. Thus, it is to be expected that the cost/benefit ratio for quality control will be questioned like any other new resource requirement. In this instance, however, it can be argued that the cost of non-quality is potentially greater than that of insuring quality.

In the absence of an effective quality control program, the institution is at risk that even the most well-intentioned personnel will unknowingly contribute to the inefficient use of financial and people resources. This is especially true in a complex responsibility like student aid. The cost of "reworking," correcting work not done properly the first time, is an expensive proposition in any endeavor; student aid is no exception. The automobile industry calls this correction activity "recalls." Student aid "recalls" are a frequent occurrence at many institutions, even those with well-conceived financial aid operations. The financial cost to the institution for rework is difficult to measure, but it is not insignificant. In most cases, the cost of quality control will be less than the cost of rework.

In the case of improperly awarded student aid, however, the cost is not solely in the rework. The award dollars themselves are in short supply at most institutions. Every dollar that is provided erroneously to one applicant is figuratively taken from the pocket of another applicant equally deserving, if not more so. That non-aided or under-aided applicant may be deprived of the opportunity to enroll, in which case the cost is shared by the applicant, the institution, the integrity of the aid program, and the society as a whole.

QUALITY PHILOSOPHY

- FAILURES ARE CAUSED
- PREVENTION IS CHEAPER THAN DETECTION
- PERFORMANCE CAN BE APPRAISED
- QUALITY COSTS MONEY
- UN-QUALITY COSTS MORE

The quality of student aid delivery obviously varies greatly from institution to institution. Establishing a quality control program where one does not already exist is not inexpensive. Determining the degree of inaccuracy being experienced at the institution, even if not required by law or regulation, will permit an evaluation of the cost being borne to support a less-than-efficient aid operation. In most cases, the cost of non-quality will exceed the cost of insuring quality.

This is not to say that error-free delivery can or should be achieved at any cost. In fact, an error-free environment, even if possible, would probably not be cost-effective. Just as a low loan delinquency rate can be assured by refusing to lend to potential risks, error rates can be brought to low levels by over zealous requirements and monitoring, to the point that only the few uncomplicated cases ever get processed. Thus, institutions as well as government agencies must strike a careful balance between doing too little and doing too much. The costs, not all of which are financial, must be carefully considered to be certain that there is an overall payoff to QC activities. The Office of Student Financial Assistance is dependent upon input from institutions for information that will help to achieve the desired balance in terms of Federal activities. Likewise, the institutions themselves must utilize cost/benefit analysis to optimize the effectiveness of quality control activities.

THE PURPOSE OF THIS MANUAL

The purpose of this manual is to expand awareness of quality control techniques on the part of professional financial aid and fiscal administrators, many of whom have on their own made a significant contribution to effective and efficient student aid delivery. The Office of Student Financial Assistance has no monoply on workable techniques for insuring quality, and this document makes no claim to be the last word in quality control in student aid. OSFA welcomes the submission of successful approaches to the development of quality control mechanisms which it can share with all institutions, either in subsequent editions of this manual or through other means, such as the Student Financial Assistance Training Program. Suggestions should be sent to the Division of Quality Assurance, OSFA, U.S. Department of Education, 400 Maryland Avenue, S.W., Washington, D.C. 20202.

This document outlines a framework for establishing, designing, implementing, and operating a QC program for those institutions which believe they can benefit from such activities. Chapter 2 discusses how to establish a quality control program, Chapter 3 describes the design of a QC program, and Chapter 4 presents ways to implement and operate the QC program. Finally, Chapter 5 presents techniques for evaluating and enhancing the QC system. Appendices provide reference materials for such technical information as sampling techniques, specialized QC techniques for computerized systems, and suggested supplemental reading. Important sections of the Appendices are the sample QC plan and the QC checklists.

HOW TO USE THIS MANUAL

The reader should become familiar with the concepts and components of quality control as they are presented in Chapters 2 through 5. The sample QC plan contained in Appendix A should be reviewed in conjunction with the explanations of QC development in Chapter 3. The next step is for the reader to use the techniques he/she has learned to expand the sample QC plan to serve the needs of his/her institution's financial aid operation. The implementation checklist should be utilized to revise or expand the resulting QC plan. Once the QC plan is implemented, the evaluation checklist should be utilized to revise or enhance the QC plan.

CHAPTER 2

ESTABLISHING A QUALITY CONTROL PROGRAM FOR STUDENT FINANCIAL AID

The purpose of this chapter is to detail the steps required to build an institutional QC system. The steps could vary significantly, depending on the QC approach selected, the size of the institution, the level of automation throughout the institution, the resources to be devoted to the system, and the objectives of the financial aid office. Figure 2-1 graphically details the tasks and steps a typical institution must perform in order to plan, design, develop, and implement a QC system. Each task will be discussed in detail throughout the manual. This chapter deals with Task I.

OBTAINING INSTITUTIONAL COMMITMENTS

The importance of adequate planning and organization to the success of an institutional QC system cannot be overemphasized. Proper planning includes obtaining an institutional commitment to the system, developing a team to oversee the system development effort, assigning specific responsibilities and ascertaining the available resources for development and operation of an ongoing institutional QC system.

Obtaining the commitment of top institutional administrators to the initiation of a financial aid quality control effort is extremely important to the ultimate success of such an activity. Because quality control is achieved only through the combined efforts of everyone involved in the delivery process, it is important that all concerned sense the commitment to quality held by their supervisors. That attitude is instilled best from the highest levels of the institution.

This does not mean that top management must be involved in the actual implementation process, although that would be a plus. There should, however, be an awareness of the need for a quality control activity and a willingness to provide

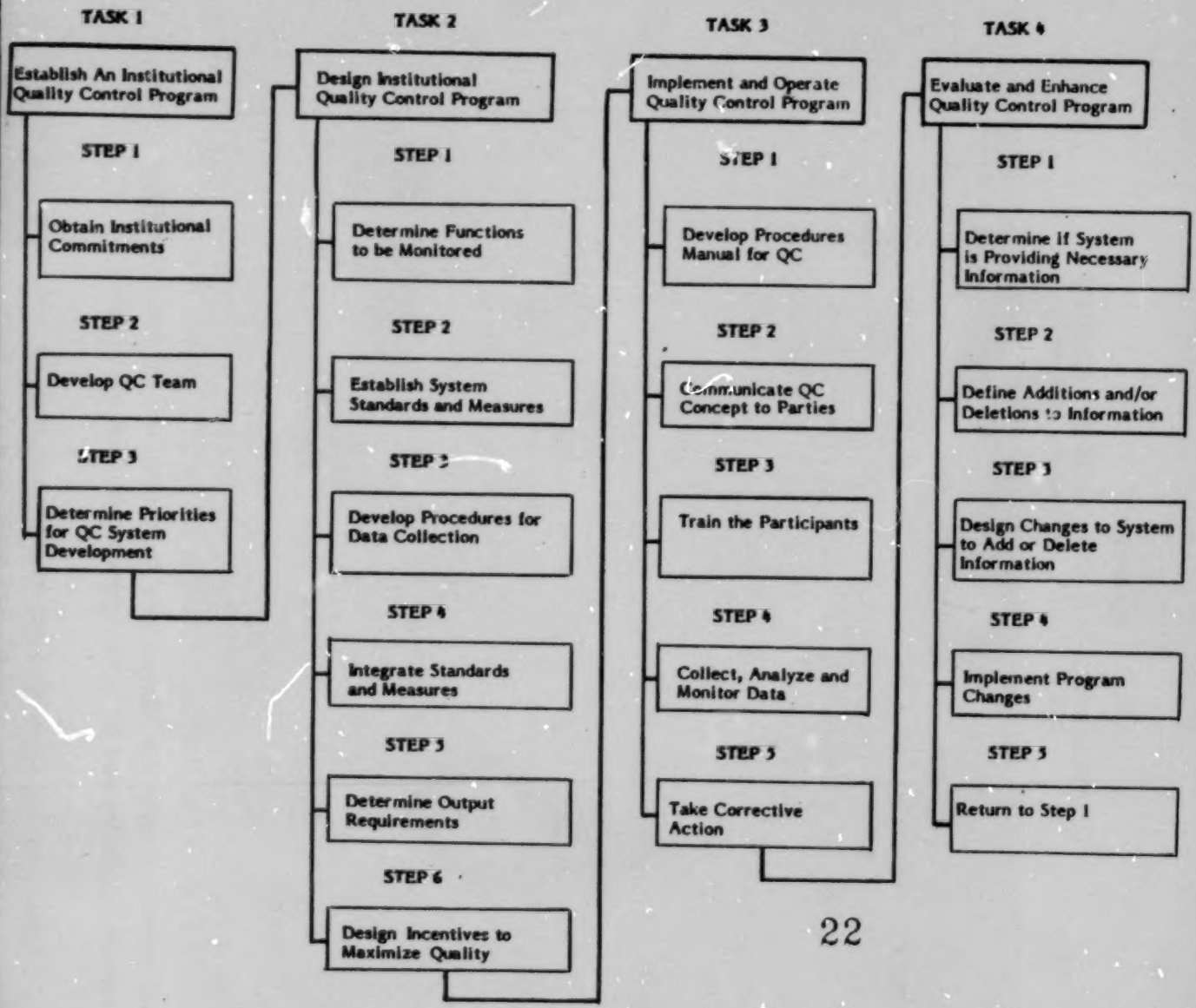
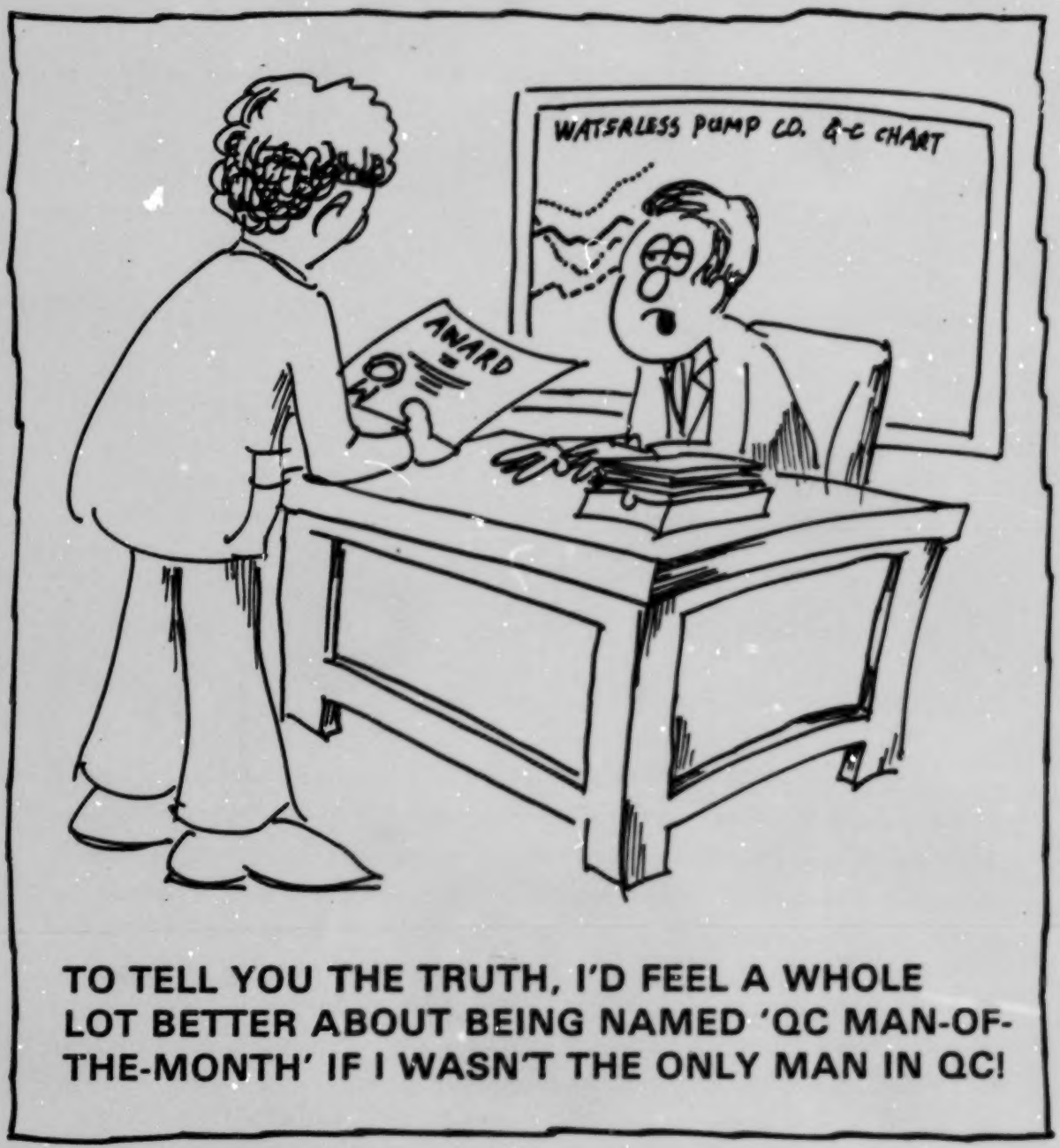


FIGURE 2-1

INSTITUTIONAL QUALITY CONTROL SYSTEM

WORKPLAN SCHEMATIC

QUALITY CONTROL IS EVERYBODY'S BUSINESS



TO TELL YOU THE TRUTH, I'D FEEL A WHOLE LOT BETTER ABOUT BEING NAMED 'QC MAN-OF-THE-MONTH' IF I WASN'T THE ONLY MAN IN QC!

sufficient resources to mount the effort. Obtaining this commitment could prove difficult in these times of tight budgets, but the financial aid administrator should emphasize the benefits to the institution, the need for a system to reduce errors that may be reducing Federal entitlements to students and/or creating institutional liabilities, as well as the positive focus of the system.

The chief administrative officer should inform the appropriate officials of his/her commitment to ensure their cooperation. The continuing commitment of the following organizational units will be ensured by their inclusion in the QC development effort:

- Financial Aid Office
- Business Office
- Admissions Office
- Registrar's Office
- Data Processing Department
- Academic Departments
- Internal Audit (if applicable)
- VA Benefits Office (if applicable).

DEVELOPING THE QC TEAM

After institutional commitment has been obtained, the financial aid administrator should organize a QC steering committee. Representatives of all the organizational units listed above should be included on the committee. The steering committee is necessary to provide a unity of purpose and an authority to conduct the needed data collection and/or experimentation inherent in operating quality control activities. The committee members, if properly selected, have the background of general knowledge about the current delivery system, the institutional "politics" and relevant individual needs, and competing resource demands to enable the committee to establish priorities, motivate the cooperation of all staff involved, and then implement the corrective actions resulting from the QC process.

At the initial meetings, the committee should organize itself for the effort. A chairperson should be selected; in many cases it will be the financial aid administrator. A QC working team should be formed, and roles assigned to specific members of the working team. The working team may differ from the steering committee in the extent of familiarity it has about the specific details of the delivery process. It should contain persons who are involved in the day-to-day operations of the affected offices and know the "nitty-gritty" aspects of administering student aid. It should also contain individuals who are more removed from the day-to-day operations and are thus more objective about what is being done currently, who can ask "why are we doing this?" Figure 2-2 outlines the division of responsibilities among the QC steering committee, the working team and the organizational units directly involved (primarily the financial aid and business offices).

In small institutions, and some larger ones, it may not be appropriate to form a separate QC working team, but to have the QC steering committee assume both roles. In other institutions it may be appropriate to include a quality control consultant on the working team. This could be a member of the faculty who is experienced in QC procedures, or an outside expert. Data processing staff also should be part of the team, even if the financial aid operation is not currently automated, to draw upon their systems orientation. If an institution has an internal audit staff, they should be represented on the QC working team.

DETERMINING PRIORITIES FOR DEVELOPMENT

One of the greatest threats to getting a quality control program successfully underway is trying to do too much too fast. Success is much more likely if the QC activities start small, focusing upon feasible, high payoff—low exposure (risk) efforts, and then expand as resources and personnel commitments allow. Such focused activities, sometimes called "targets of opportunity" in QC jargon, create a high probability that results will be positive and visible, thus reinforcing the need for, and potential of, a quality control program. To accomplish this objective, priorities must be set.

Priorities for development involve two distinct tasks: identifying the level of quality desired, and selecting the best QC approach. At the initial meeting the QC

ACTIVITY	QC STEERING COMMITTEE	QC WORKING TEAM	CONCERNED ORGANIZATIONAL UNIT
1. Determine Priorities for QC System Development	PRIME RESPONSIBILITY		
2. Design Institutional QC System • Standards & Measures • Outputs • Processes		PRIME RESPONSIBILITY	COLLATERAL RESPONSIBILITY
3. Approve Institutional QC System Design	PRIME RESPONSIBILITY		
4. Select Approach & Develop Implementation Plan	PRIME RESPONSIBILITY		
5. Develop Institutional QC System • Software • Reports • Forms • Procedures		PRIME RESPONSIBILITY	COLLATERAL RESPONSIBILITY
6. Approve System As Developed	PRIME RESPONSIBILITY		
7. Implement System • Test • Train • Initial Evaluation		PRIME RESPONSIBILITY	COLLATERAL RESPONSIBILITY
8. Monitor Ongoing System	PRIME RESPONSIBILITY	COLLATERAL RESPONSIBILITY	

FIGURE 2-2

INSTITUTIONAL QUALITY CONTROL
SYSTEM DEVELOPMENT ROLES AND RESPONSIBILITIES

steering committee begins to determine priorities for QC system development. The committee should first assess the overall existing level of quality in the financial aid operation. The following are recommended methods of quality assessments:

- Review of Pell Grant and Campus-Based audit reports
- Review of program reviews performed by OSFA
- Discussions with staff in business and financial aid offices
- Completion of Institutional Guide for Financial Aid Self-Evaluation published by the National Association of Student Financial Aid Administrators.

Often people actually performing the work are aware of problems not known by others. Therefore, involving staff from the business and financial aid offices in the assessment stage is very important. It also helps to gain their commitment and cooperation for the system development effort.

Existing levels of performance must then be compared to both minimal and desired levels of performance (which may or may not be the same). Minimal performance levels will be dictated by the current laws and regulations governing the programs being administered and institutional policies and procedures. Desired levels also may reflect professional standards of good practice and/or the expectations of the students, faculty, and administrators concerned with student aid. The amount of congruence between existing and minimal or desired performance levels will be an important factor in setting priorities, especially in selecting the most appropriate QC approach.

Selecting the Appropriate QC Approach

Once the assessment process is complete, specific targets for QC system development should be identified. The QC task force should select targets to be developed based on the assessment and the amount of available staff and resources.

There are three basic approaches that can be taken in developing a QC system: the ad hoc approach, which controls for sporadic error on an irregular, unplanned basis; the comprehensive approach, which attempts to control for every possible error; and the selective approach, which controls for critical errors within an overall

QC system framework. Institutional characteristics, resources, and specific problems must be considered when selecting the best approach.

Ad Hoc Approach. The ad hoc approach is most likely to produce a "back-end" effort toward quality control by attempting to detect and correct errors after they have occurred rather than preventing the occurrence of error through systematic monitoring. When an error-prone item or process such as award calculation experiences a problem significant enough to threaten or actually disrupt the equitable distribution of benefits, an ad hoc system for monitoring and correcting that problem is developed, usually under crisis conditions. The quality control system that evolves from this approach is not a functionally integrated system, but rather a collection of unrelated activities which are of limited value in monitoring the quality of the overall service provided, or of producing information necessary to develop corrective actions.

The advantages of the ad hoc approach are that it can be:

- Designed with limited resources on an as-needed basis
- Implemented in a short timeframe
- Used as a first step toward developing a comprehensive or selective QC system.

The disadvantages are that it lacks:

- A QC system framework for assuring that each ad hoc QC activity will function compatibly with other ad hoc QC activities
- The capability to monitor overall program performance
- A planned and systematic allocation of resources for QC activities.

Comprehensive Approach. The basic premise of the comprehensive approach is, as Murphy's law implies, that anywhere that the delivery of aid to students can be disrupted, it will be. Thus, every known or potential error point in the delivery system must be identified and monitored. The comprehensive approach to QC requires ongoing procedures for monitoring and measuring <u>each</u> set of activities against a standard of performance. These sets of activities or functions include:

the application process; the determination of student eligibility; the calculation of student awards; the disbursement of funds; the management of funds; and the reconciliation of accounts.

The comprehensive approach provides for an integrated system of procedures with both a "front-end" preventive focus and a "back-end" corrections capability.

The advantages to the comprehensive approach are that it can:

- Identify, monitor, and measure most possible errors
- Provide comprehensive information on the performance of delivering and managing student aid
- Assure that the various system components are operating in concert and that resources are maximized, due to an integrated framework for all QC activities.

The comprehensive approach does have the disadvantages of:

- Higher costs to design, implement, and operate than for the other two approaches, although net long-run savings may be greater
- The possibility for over-emphasis on less important errors
- The higher possibility of failure, due to an unfocused nature.

Selective Approach. The selective approach assumes that the financial aid and fiscal managers can identify the major problems in the delivery and management of student aid and that corrective actions can be addressed through the development of modular components of an overall QC system. Each component or module is designed to focus upon and monitor specific error-prone activities, to measure specific critical error points, and to provide the manager with the necessary information to develop corrective actions and to improve program administration. The selective approach embraces a concept developed by Juran,[1] which can be labeled "the Pareto Principle." The Pareto Principle focuses QC efforts upon what Juran calls the "vital few," those activities present in every endeavor

[1] Juran, J.M., "Managerial Breakthrough," McGraw-Hill Book Company, New York, 1964.

that are few in number but large in impact upon the desired result. The "vital few" are usually capable of being addressed on an individual basis and with great potential for successful corrective actions. Conversely, Juran identifies what he calls the "trivial many," activities that have little impact upon the result, do not warrant individual attention, and can usually be approached collectively through generalized actions such as better staff selection, training, etc.

Utilization of the Pareto Principle involves the following distinct steps:

- Develop a written list of all that stands between current and desired performance
- Arrange the list in order of importance (based upon the magnitude of the problem, the monetary impact of the results, etc.)
- Identify the "vital few"
- Identify the "trivial many."

Figure 2-3 illustrates a hypothetical outcome of such an analysis using the Pareto Principle. Critical errors in need of immediate attention are identified on the basis of the Parento Principle.

Quality control modules are developed and implemented based on a prioritized list of critical errors. Incremental development and implementation allow pilot testing of modules and realistic budgeting for an institution's short- and long-range financial plans. Though a more limited effort than the comprehensive approach, the selective approach provides both "front-end" and "back-end" QC capabilities.

The selective approach for QC in the financial aid operation requires the expansion of basic steps shown in Figure 2-1, such as:

- Identification of potential sources of error or delay in the delivery and management of student aid
- Analysis of each of the functions or sets of activities associated with aid delivery and management including: information requirements, linkages between activities, linkages to other institutional systems (Registrar, Business Office, others), and potential breakdown points
- Development of a conceptual framework for the QC system from which specific modules operate to monitor, detect, and prevent error

"VITAL FEW" AND "TRIVIAL MANY" CONCEPT

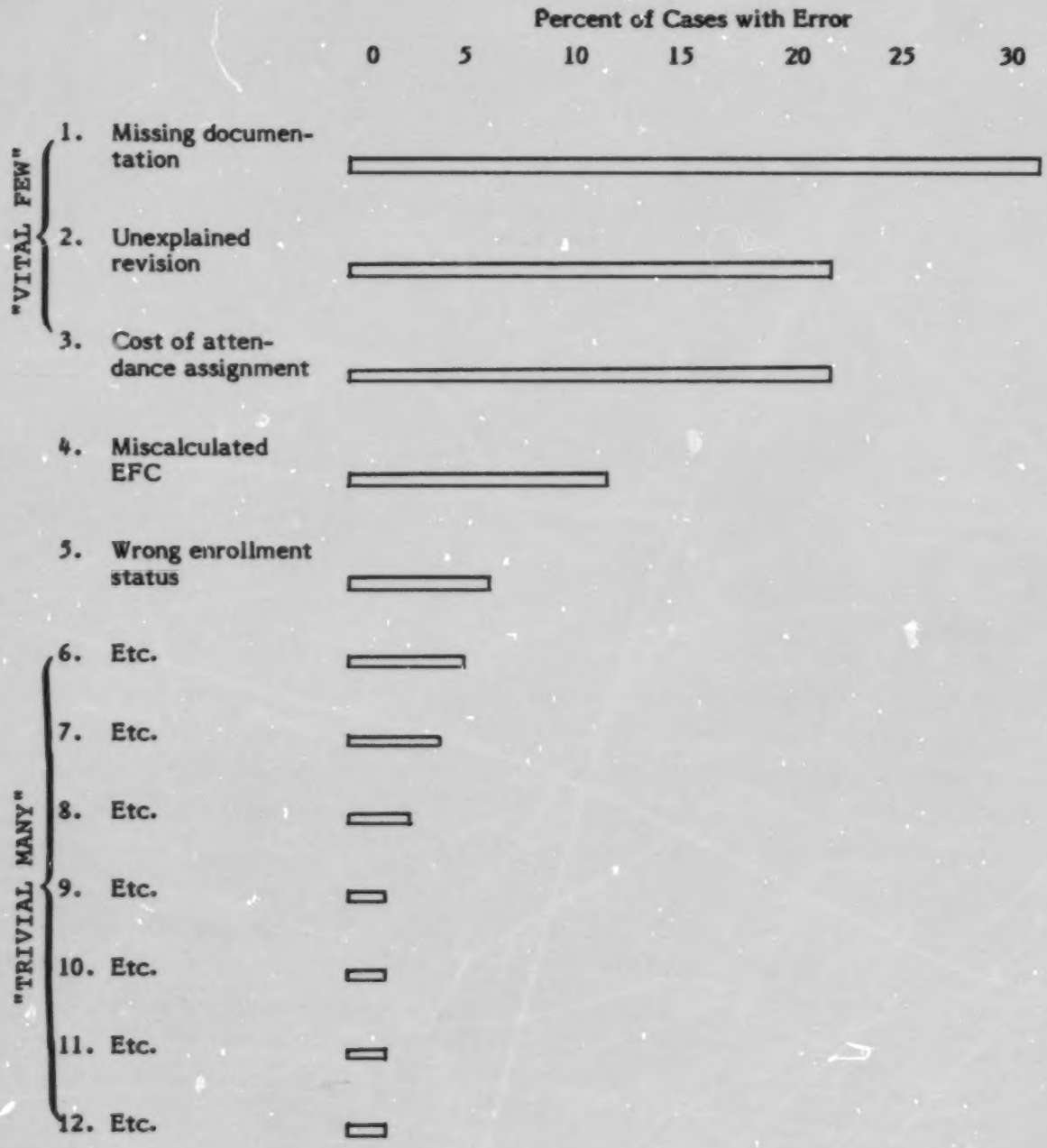


FIGURE 2-3

"VITAL FEW" AND "TRIVIAL MANY" CONCEPT

- Selection and prioritization of modular components for development; identification of timeframe for specifications design, development, and implementation of each selected subsystem.

Advantages of the selective approach include the fact that it:

- Uses existing data and requires only minor modification to current data collection procedures
- Focuses on reducing critical errors
- Has moderate costs for design, implementation, and operation
- Is able to respond to regulatory, legislative, or policy change without costly modifications.

Disadvantages to the selective approach include the:

- Lack of an immediate monitoring capability for overall program health
- Possible misidentification of actual problems.

Regardless of the approach selected, a QC manager must be designated. That individual is usually the financial aid administrator. Both the comprehensive and the selective approaches require the designation of a QC team responsible for conducting continuous QC activities. The sporadic activities associated with the ad hoc approach are most often performed by a supervisor or manager, since no real organization for QC exists.

The decision as to which QC approach is most appropriate should be considered in light of several important issues. The relative importance of each of these issues in deciding which approach to take in developing a QC system will, of course, vary among institutions. However, at a minimum, five issues presented in this chapter must be clearly resolved before selecting an approach and developing a QC system. These considerations are:

- Determination of critical error-prone items - Have the error-prone items and specific error points been fully identified? What problems have historically been identified in audits and program reviews? Is the existing or potential liability which results from such errors significant enough to warrant a selective or even a comprehensive approach?

- Program size - Are the number of recipients and the dollar size of the financial aid program large enough to require systematic monitoring of error-prone items, corrective actions planning, and other elements of quality control by the financial aid administrator?

- Organizational structure - Does the existing organizational structure within the financial aid office and the institution support the approach selected?

- Current and potential resources - Are those resources sufficient to support the QC approach selected on an ongoing basis?

- Administrative commitment - Is the commitment of top institutional officials and of key department heads strong enough to ensure that a QC program of this type will be a fully-supported, continuous effort?

For purposes of discussion, this document will use the selective approach as a sample QC plan. The comprehensive approach could be accomplished by expanding the selective approach. The ad hoc approach is less than desirable, but would use similar techniques in a piecemeal manner.

Developing the QC Plan

The final element in establishing priorities is to develop the QC plan. This involves putting in writing the goals and objectives of the QC program, consistent with the approach selected, the priorities for design and development, a schedule for completion, the resources required for each activity, and the assignment of specific responsibilities to the various members of the QC working team.

CHAPTER 3
DESIGNING THE QUALITY CONTROL PROGRAM

It is in the design of the QC program (see Figure 2-1, Task 2) that the most variability among institutions will occur in terms of level of effort. For small schools with a small financial aid office (a financial aid administrator and a staff of students), this task may include little more than copying procedures from the audit guides, developing a simple one-page report, and performing simple QC studies periodically (no real implementation step). The largest schools will probably have a large-scale software development effort, involving the design of sophisticated reports using graphics, development of detailed procedural manuals, etc. The special requirements of automated QC programs are discussed in detail in Appendix G.

DETERMINING FUNCTIONS TO BE MONITORED

The first step in designing a QC program is a review of all aspects of the financial aid operation and identification of the error-prone items or processes. This step corresponds to step 1 in the QC Cycle shown in Figure 1-1. The NASFAA Self-Evaluation Guide will be helpful. At least one member of the financial aid staff should be involved in this process. Large institutions should appoint a representative from each functional division of the financial aid office to serve on this subcommittee of the QC working team. An example of a typical error-prone process is the calculation of the cost of attendance for Pell Grant. The sample QC plan in Appendix A presents a sample format that can be used to describe various error-prone items and processes.

Problems unique to the institution also should be identified. For example, an institution may have a scholarship program that needs to be monitored for verification of eligibility as required by a specific donor.

DEVELOPING QC MEASURES

Measures in quality control systems are quantifications of outputs or characteristics of standard procedures which are used to determine if operational standards are being met. Measures are not necessarily completely "objective," in that it is the responsibility of individuals familiar with a particular financial aid system to determine what measurement points would be most effective and what specific measurements should be taken. Whatever measures are selected, however, should be made routine, systematic, and designed so that any staff member or outside auditor could obtain the same results using the same data. In short, measurement decision rules should be written and subjected to verification.

The process for integrating quality control data into institution procedures begins with assessing overall levels of error in the system. As will be discussed below, case reviews provide the most efficient means of estimating overall error. Once these data have been asssembled systematically, however, it should be possible to determine specific sources of error. These potential problems can then be monitored more closely. Corrective actions can then be instituted. The ongoing quality control system will automatically supply the aid office with data on: whether the corrective actions reduce specific types of error; whether these corrections improve overall aid office performance; and whether <u>new</u> problems arise.

The specifics of quality control measures defined by the QC working team will depend on the structure of the operation, but most generally, QC systems would address two sets of basic issues: the incidence of overall program error and the level of productivity. From an overall management perspective, these two sets of issues may be in conflict. It is the responsibility of the financial aid administrator to determine what the desirable trade-offs among workloads, flow, accuracy, employee morale, quality of service to students, and so forth might be. From a quality control perspective, error and productivity may be viewed as two interlocking components of program performance.

Error Measures

If correct and equitable distribution of financial aid is viewed as the primary

function of the financial aid office, then measurement of error is the key to institutional quality control. Measurement of overall program error takes two basic forms:

- **Number** of awards made in error
- **Amount** of award dollars incorrectly awarded.

For each type of financial aid, total error can be broken down into components. Each component represents the portion of error attributable to major actors in the system (e.g., processor, student, institution) or to even finer assignments of causality (e.g., error attributable to misreporting income, error due to incorrect calculations by aid administrators, error due to students' failure to submit statements of educational purpose). Figure 3-1 illustrates the various levels or types of institutional and student error which can be measured for the Pell Grant program. A similar scheme using the pertinent application and eligibility items could be drawn up for Federal Campus-Based aid, state aid, or institutional aid. Figure 3-2 illustrates a type of QC error measurement.

Productivity Measures

Work productivity measures include a range of management concerns that go beyond those directly related to quality control in the administration of financial aid. There are, however, two aspects of work productivity measurement that directly affect the quality of financial aid operations. First, the financial aid and fiscal offices must be able to organize tasks so that administrative deadlines can be met. Second, particular procedures should be completed within reasonable periods of time in order to meet the needs of students and parents as well as the aid or other institutional offices.

The basic measures of productivity, from the quality control perspective, are units of completed or uncompleted work and units of time (normally days). Standard procedures in financial aid and fiscal offices should include careful scheduling of all activities. Timelines, critical path schedules, etc., indicate the dates by which major activities must be completed. For any financial aid or fiscal office, a formal schedule of events would set out the dates when major reports to Federal or state agencies are due, and when major steps in aid processing, e.g., Pell validations,

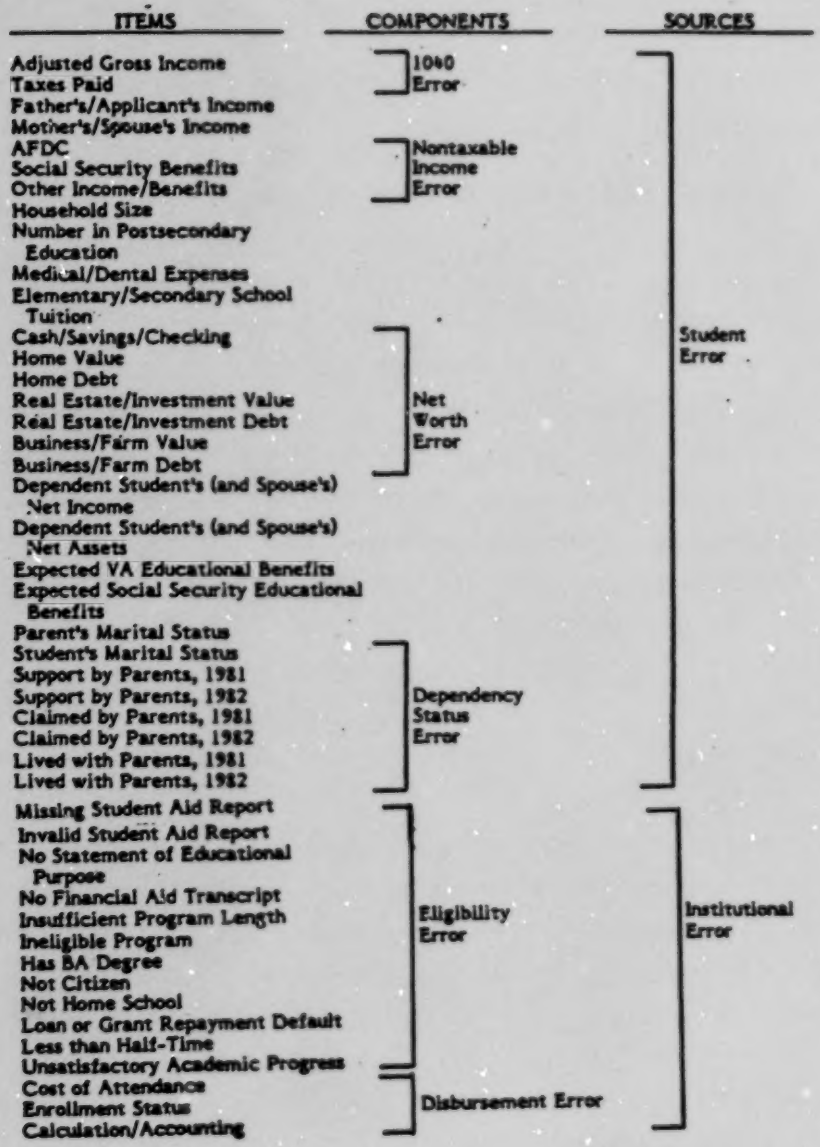


FIGURE 3-1

DECOMPOSITION OF TOTAL PAYMENT ERROR

(From 1982 Pell Grant Quality Control Study)

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PAYMENT INPUT QC CHECK

Instructions:

a) Pull one daily deposit slip from the NDSL payment file.

b) Select 10 check copies from the deposit file folder.

c) Pull the computer-generated payment roster for that date.

d) Verify account and payment information as recorded on the payment roster against payment copies (checks, money orders, etc.)

e) Record input errors -

1) Name 2) SSN 3) Payment Amount 4) Payment Type

EVALUATION CRITERIA: **No Rating Required**

	Student Name	Input Errors Detected
1.	Alpha	No errors noted.
2.	Beta	Payment type entered as a cashier's check - payment copy indicates the borrower's payment was a money order.
3.	Gamma	Two letters in the debtor's SSN were transposed: (54) entered in the computer where (45) should have been entered.
4.	Delta	No errors noted.
5.	Epsilon	No errors noted.
6.	Zeta	No errors noted.
7.	Eta	Borrower's maiden name was inputed into the computer system instead of her married name.
8.	Theta	No errors noted.
9.	Iota	No errors noted.
10.	Kappa	No errors noted.

FIGURE 3-2

PAYMENT INPUT QC CHECK

packaging, award notices, aid disbursements, student repayments, refunds to Federal or state programs, etc., should be completed. Productivity measurements may be formulated as simple yes/no indicators, that is, counts of whether a specific deadline has been met. Alternatively, the measures can be structured in terms of the number of days by which a deadline is missed (or surpassed). Figure 3-3 illustrates a productivity measurement exercise. Figure 3-4 combines a productivity check with an error measurement.

Measures of processing time for particular operations are based on completed work at a given level of accuracy in a given period of time. Flow measures correspond to the operational measures defined for program error. If completion of certain tasks, e.g., aid packaging or submission of Pell Progress Reports, is found to be lax, managers may wish to monitor specific aspects of the operation. Among the specific operations which might be monitored are the following:

- Time from receipt of aid application to determination of tentative eligibility
- Time required to validate aid application data
- Time required for packaging an eligible applicant
- Time required to verify student enrollment status
- Time required to respond to student appeals
- Time required to recover an overpayment from a student
- Time required to process financial aid transcripts for transfer students
- Time required to deposit loan payments.

Keeping records of the average flow of work in areas like these not only allows managers to isolate and correct particular problems in procedures, work organization, work assignments, etc., but may also help to reduce the impact of inevitable peak load situations on the quality of work being done.

When the measures to be used have been determined, step 2 of the QC Cycle (Figure 1-1) has been accomplished.

RESPONSE TIME QC CHECK

Instructions:

a) Randomly select 10 files with SARs requiring validation.

b) Note the student's name, social security number, and receipt date of the SAR on the survey sheet.

c) Note the date of first request for validation information on the survey sheet.

d) Calculate the number of working days between the SAR receipt date and the date of first request for validation information.

e) Note the reponse time on the worksheet and note the rating received.

	Student's Name	SSN	SAR Receipt Date	First Request Date	Number Working Days	Rating
1.	Smith, John C.	123-45-6789	2/15/83	2/18/83	3	100
2.	Jones, Harold M.	987-65-4321	3/3/83	3/10/83	5	90
3.	Brown, June K.	135-79-2468	3/8/83	3/21/83*	5	90
4.	White, April L.	864-29-7531	6/2/83	6/14/83	8	70
5.	Johnson, Kay T.	444-44-4444	5/11/83	5/13/83	2	100
6.	Spencer, Randall J.	121-21-2121	4/7/83	4/12/83	3	100
7.	Flynn, James E.	266-62-2266	2/21/83	2/28/83	5	90
8.	Adams, Kit F.	898-98-9999	6/13/83	6/16/83	3	100
9.	Wallace, Gina R.	000-00-0111	2/23/83	3/2/83	5	90
10.	Moore, Dale I.	245-54-2452	3/22/83	3/24/83	2	100
						930

*Spring vacation 3/14 - 3/18.

Evaluation Criteria:			
	1 - 3 days	100	points
	4 - 5 days	90	points
	6 - 7 days	80	points
	8 - 10 days	70	points
	11 days or more	0	points

Response Time Rating: 93 (Total score divided by total number of files surveyed--10)

If rating is 90 or above, no action.

If rating is 70 to 89, review procedures for bottleneck.

If rating is less than 70, procedures need a comprehensive review and appropriate changes made.

FIGURE 3-3

RESPONSE TIME QC CHECK

TELEPHONE RESPONSE QC CHECK

Extension: _____ Surveyor: _____ Survey Date: _____

Line: _____ Rating: _____

Question:

Correct Answer:

Answer Given:

Name of Person Who Answered Question: _____

Evaluation Criteria

1) How many times did the phone ring? _____

20	points	1-4 rings	_____
15	points	5 rings	
0	points	6 or more rings	_____

2) Did the responder answer the phone and properly identify the office/unit?

20	points	- appropriate response	_____
10	points	- close	
0	points	- inappropriate response	_____

3) Was the tone/attitude of the responder:

20	points	- warm/businesslike	
15	points	- firm	_____
10	points	- very busy	
0	points	- rude	_____

FIGURE 3-4

TELEPHONE RESPONSE QC CHECK

4) Was the call answered properly?

40	points	- correct answer, correct transfer, call back	
10 - 25	points	- partial answer	_____
0	points	- incorrect answer, inappropriate transfer	_____

If the call was not answered properly, state reason(s) why. Deduct 10 points from the maximum score of 40 points for each incident which you deemed improper, e.g., placed on "hold" too long, transfer disconnected, etc.

An unacceptable rating for a responder is less than 85 points.

Directions:

1) Surveyor uses a fictitious name and/or organization.

2) Dial the telephone extension and record the number of rings in the appropriate blank.

3) Record the responder's initial statement. "Student Assistance," "Hello," "Huh."

4) State the predetermined question distinctly.

5) Record the responder's answer exactly as stated. If the responder transfers your call, record the number of the office to which the call is transferred. If the responder wants to take a call back message, ask why and record his/her reason(s) if any are given.

6) Ask the responder for his/her name.

7) Terminate the call, thanking the responder for his/her help.

8) Add up the rating points and enter in the appropriate blank.

FIGURE 3-4 (Continued)

TELEPHONE RESPONSE QC CHECK

DEVELOPING QC STANDARDS

A financial aid quality control system can only be built upon a foundation of standard procedures. Office procedures will vary significantly, depending on the size and complexity of the institution, and on subjective differences in the management styles and objectives of different individuals and organizations. Nevertheless, each financial aid operation has to organize itself in order to complete the complicated work of administering student aid. Procedures must be established to deal with work assignments, scheduling, accounts reconciliation, recordkeeping, resolving unusual problems, etc.[1] The goal of a quality control system is to provide institutions with a means of monitoring the effectiveness of procedures so that problems may be detected and corrected before the overall objectives of financial aid--quality service and equitable distribution of aid--are seriously undermined.

Quality control systems are organized around the concept of **standards.** This concept actually represents two related issues in program evaluation. Achieving **overall program standards** can be seen as the final step in the operation of a QC system. For financial aid offices, overall program standards refer to the level of performance deemed acceptable for the distribution of financial aid. Program error (the misallocation of aid) is one criterion for establishing overall program standards.

Operational standards are more specific rules for evaluating particular procedures or outcomes. Operational standards are designed to allow decisions to be made about the quality of subcomponents of the overall system. Such standards would relate to the accuracy of application data, the accuracy of need analysis calculations, the accuracy of disbursements, etc. The ultimate purpose of these operational standards is to help achieve an acceptable level of overall program

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[1]The student financial aid community has produced extremely valuable materials which can help aid offices produce more systematic procedures for administering financial aid. Management of Student Aid, prepared by the National Association of College and University Business Officers, (1979); Institutional Guide for Financial Aid Self-Evaluation (Fifth Edition) prepared by the National Association of Student Financial Aid Administrators (1982); and Self-Evaluation In Proprietary/Clock-Hour Institutions prepared by the National Association of Student Financial Aid Administrators (1981) are particularly useful sources. Also see the flowcharts in Appendix E.

performance by discovering problems before funds are disbursed incorrectly. Developing standards involves the completion of step 3 in the QC Cycle shown in Figure 1-1.

Methodology for Developing Standards

The standards which underlie a quality control system can be developed in several ways. As has been discussed previously, some standards are set normatively, that is, they are determined by Federal administrators, legislators, financial aid administrator, accountants, etc. on the basis of what they believe to be minimum acceptable levels of performance. Standards can also be developed within the financial aid office on the basis of empirical data collected on existing error, and evaluation of the impact of that error. In QC terminology, this is called establishing a base line error rate. This second process of developing standards involves three basic steps:

- Estimating existing (base line) error
- Determining tentative standards on the basis of initial estimates of error
- Revising these standards in the light of continuing measurement and evaluation.

Each of these steps is reviewed below.

Estimating Existing (Base Line) Error and Determining Tentative Standards. Estimates of error are best derived from case studies of statistically sound samples. Measures of error can be presented as distributions or ranges. For example, award error can be broken down into ranges of $100. The findings of a quality control case review can then be displayed in chart form, as in Figure 3-3. In this hypothetical example, reviewers found that there was no award error in 90 cases, overawards of $1 to $100 in 70 cases, underawards of -$1 to -$100 in 20 cases, and so forth. In 12 cases, students were found to have been overawarded by $800 or more.

Ranges of error above $800 could have been presented if further delineation was of value. These case findings are also presented as percentages. Over one-third (33.7 percent) of the cases reviewed had zero error. Another 33.7 (7.5 plus 26.2) percent were found to have been awarded within $100 of the correct amount. In

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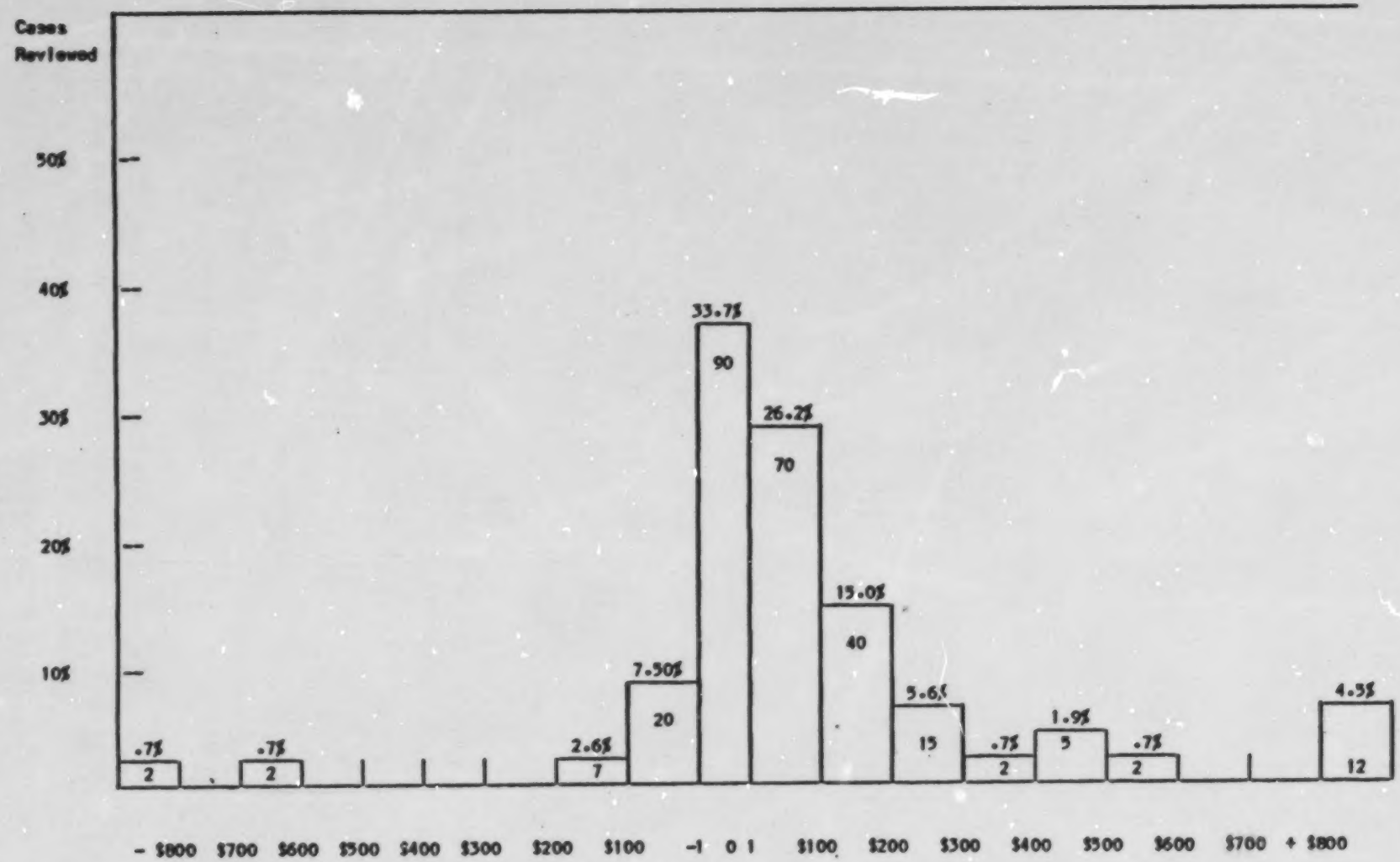

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FIGURE 3-5

DISTRIBUTION OF ERROR BY SIZE
SAMPLE ERROR REPORT

other words, most cases were found to have error of under $100. Based on these data and an understanding of the implications of errors of over $100 for the overall integrity of the financial aid program, the financial aid staff may decide that efforts to reduce error can most effectively be applied to those cases involving larger discrepancies, deferring attention to smaller error situations to a later time. Here again the Pareto Principle can be used, this time based upon the magnitude of the error, to determine the "vital few" and the "trivial many" for purposes of focusing the corrective actions attention. If the standard is set at $100, approximately one-third of all cases in this example would not meet this standard. Some corrective actions--significant changes in the procedures used in the financial aid office--might be in order. Standards might also be set in terms of greater precision, e.g., tolerance of $50 or $25.

Revising Standards. Evaluating error measurements (twice per year, quarterly, etc.) will allow financial aid staff to see if the distribution of error changes over time and if the tentative standards continue to be realistic and useful for maintaining high quality work. If the distribution of error remains relatively stable over time, the error rate is probably as low as it can be, at least without instituting more substantive changes in policy or procedure. If further reduction of error is thought to be cost-effective, those changes should be initiated. If not, there is no need to adjust the standard, but it can be maintained as a means of detecting any deterioration of performance. If, on the other hand, the distribution of error changes significantly, or if the existing standards do not seem to contribute to efficiency or to high levels of performance, the standards should be changed. For example, if only limited front-end quality control procedures are in place, and only 10 percent of all cases are found to fail the established error standard of $100 case error, it may be that this standard is too lax. Changing the standard to accuracy of $\pm$ $50 for 90 percent of all cases might help the institution focus its resources more efficiently and bring down the error rate more than was previously thought possible. Similarly, if case review consistently shows that the standard being applied is not being met in spite of conscientious efforts of the entire staff, either that standard is unrealistic and should be revised, or a more aggressive corrective action is needed to realize the desired improvement. This aspect of the QC effort is discussed in Chapter 4. Continuous review of program error and of program standards is an interdependent aspect of a meaningful quality control program.

DEVELOPING PROCEDURES FOR DATA COLLECTION

Once the standards and measures to be utilized have been determined, the next step is the development of procedures to collect the required data. This represents step 4 of the QC Cycle in Figure 1-1. Sources of data must be identified, data collection points must be determined, collection procedures must be developed, data collectors must be selected and trained, and for all but the smallest operations, sampling techniques must be selected. Each of these activities is described on the following pages.

Sources of data. The basic data source for a comprehensive QC measurement of overall program error is the aid applicant/recipient file or record. Case review provides the most exhaustive as well as efficient method for assessing the quality of financial aid operations. Systematic review of file data provides material on all financial aid programs and on institutional recordkeeping itself. For each case, reviewers should record all pertinent information relating to applicants, validation and/or verification of application data, award notification, certification of eligibility, acceptance of awards, disbursements, etc.

There are, however, sources of data other than the applicant/recipient file. Telephone and visitor logs, interview schedules, processing logs, computer printouts and related control totals, etc. all provide potential sources of data for quality control programs. For the most part, the sources of data drawn upon will depend upon the process being assessed. For some assessments, special data collection efforts will have to be developed because there is no existing data source. It may be necessary, for example, to ask all or selected staff to keep a log of the time spent on specified activities for a specified period of time. If incoming GSL applications are not logged in as they are received, that may need to be done, at least periodically, as a more efficient means of data collection than searching for date stamp imprints on individual applications.

Data Collection Points. Data collection points for selective QC studies may be any of the component elements of error indicated above. Managers may, for instance, determine that certain types of error, such as error in ascertaining cost of attendance, constitute serious problems. In such a case, the data collection point becomes the operation in question, e.g., calculating cost of attendance.

Data collection points for productivity studies are more subjective than case study reviews. For any evaluation of document processing time or the time required to complete a particular functional activity, such as need analysis or packaging, the data collection focus is on the unit of production, e.g., "a completed validation," "a processed correction," "a completed aid package," etc. These units must be defined by aid administrators on the basis of their own procedures.

Measurements of completed tasks such as preparation of the FISAP, however, are relatively straightforward. Such activities or functions should be evaluated based upon elapsed time, as well as date of completion. Delays in completing reports and/or forms for Federal or state programs may be related to delays on the part of government agencies. Nevertheless, institutional tardiness in reporting data not only impairs the functioning of the aid office, but further impedes the Federal administration of the aid programs. Thus, elapsed time should be minimized, regardless of the cause of the delay, and every effort should be made to meet submission deadlines.

Data Collection Techniques. Performance tests and reports form the nucleus of the institutional QC system. The development of such tests and reports is a major task. For an institution with limited experience, these items should be kept relatively unsophisticated until the system is in place. Enhancements such as automating additional processes should be performed after the system has been implemented and all the initial "bugs" worked out.

Standard forms should be developed to record results of the various case reviews, such as Figure 3-2 and Figure 3-3. These forms should provide a space for the reviewer to record all pertinent data on each topic.

Case review data can be processed manually or, if the facilities are available, can be processed by computer using specially-developed analysis programs. In either case, the usefulness of review depends on its thoroughness. Reviews should be viewed as audits; reviewers should strive to find every possible error in each file. Once all the review data are collected, reviewers can recompute students' eligibility, determine what the correct awards should have been, and compare their recalculated data with actual disbursement data. Overall error is the number of instances, or the dollar amount, of discrepancies between recalculated "correct"

awards and actual disbursements. The data which allow reviewers to determine whether awards were calculated and disbursed correctly also allow reviewers to compute error rates for the components of program error.

Data Collectors. Data collection can be accomplished by either of two means. One method involves the use of independent data collectors who do not have any responsibility for the processes being assessed, such as internal auditors, student workers dedicated to this task, etc. This obviously is not a feasible alternative for most smaller institutions, and perhaps many larger institutions as well. The other approach involves the use of the regular staff, scheduled to devote a portion of their time to the collection of quality control data.

This latter approach closely resembles what is known in industrial quality control as a "quality circle" method, whereby those responsible for a given function are responsible for monitoring themselves. Direct involvement usually produces better commitment from the regular staff than does the use of independent data collectors. Participation in the process further reduces resistance of the staff because there are no "outsiders" looking over their shoulders. Open communication of problems without the aura of outside harassment can be achieved more easily.

There is a further advantage to the use of regular staff for data collection. Persons knowledgeable with the process can more easily identify potential corrective actions during data collection than can individuals without such familiarity. Thus, a multi-step activity can be condensed.

Sampling. Financial aid and fiscal administrators cannot possibly review all the work that goes into providing aid for every recipient except in extremely small institutions. For the vast majority of institutions, quality control reviews can be conducted for only a sample of applicants or recipients. A sample is defined as a group drawn from a population. This section discusses the use of a simple random sample. Alternate sampling techniques are presented in Appendix B.

The information presented in this manual should provide a basic understanding of some terminology and sampling techniques, but will not prepare the reader for statistical research. Many institutions will employ a statistician or faculty member able to assist the financial aid administrator in the use of sampling techniques. An

office of institutional research can be a valuable resource. A wide selection of reference materials should also be available at the local campus or public library. OSFA additionally plans to issue a guide specifically aimed at financial aid sampling procedures.[2]

A random sample is a method whereby every individual in the population has an equal chance of being selected. Probably the most valid way of drawing a simple random sample is to assign all cases in a population a number and then select cases by use of a random number table. Tables of random numbers are created in such a way that the integers of 0 through 9 all have an equal chance of occurring in any position on the table. The digits appear on a page in a random fashion. Figure 3-6 is an example of a random number table, which can be used just as it appears in this manual. Starting at any point on the table of random numbers, corresponding numbers are taken from the published list until the desired number of cases is obtained. It is essential that the table order be followed meticulously to avoid bias in the process.

To illustrate the use of this table, we will draw a simple random sample of 50 students from a population of 735 student aid recipients at a particular university.

First, we take the list of student aid recipients and number them from 001 to 735. Second, we select a starting point on the table. To do so, I simply close my eyes and stab the table with a pencil. The first try landed on "1" for the first digit and "2" and "0" for the second and third digits. Therefore, the first number is 120. We then read down the column to find the next sample member (366). Reading down the column, we select 519, 147, and 321. However, we then come to 827. Because 827 is not a number on our student list, we skip it and continue down the column until we come to the next three-digit number between 001 and 735 inclusive.

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[2]This section draws heavily upon the forthcoming reference guide, Statistical Sampling Handbook for Student Aid Programs, prepared by the Office of Student Financial Assistance, U.S. Department of Education.

61	81	17	50	68	00	35	10	30	90	59	71	09	95	01	14
78	95	64	65	24	82	14	05	27	63	33	96	10	41	88	70
84	28	44	68	07	47	21	47	56	81	32	87	28	40	40	50
52	33	63	98	99	22	09	21	97	18	10	03	79	46	17	13
15	79	75	50	29	36	12	37	63	39	02	47	57	02	97	17
80	16	09	75	22	28	35	25	53	57	72	64	09	98	63	50
68	20	33	03	43	73	80	96	21	13	97	61	50	37	25	77
55	26	85	04	30	60	68	10	73	53	89	35	58	45	83	23
60	00	37	51	42	89	52	32	46	00	57	02	71	97	44	16
59	69	31	20	16	37	66	34	99	76	07	23	40	85	64	91
84	42	33	66	58	54	17	16	45	73	67	20	09	27	90	96
57	46	65	19	78	34	57	12	77	45	54	65	17	17	30	90
78	17	51	47	59	22	41	48	01	99	66	46	00	28	21	74
27	66	33	21	49	11	24	15	33	70	06	95	04	67	58	56
82	54	98	27	61	86	77	35	87	56	32	72	60	90	26	75
33	06	79	71	73	57	96	74	85	94	36	97	87	79	82	00
77	94	61	11	69	61	78	78	36	51	45	21	82	94	39	22
87	15	49	66	56	55	34	99	05	26	45	35	59	83	55	47
24	98	52	45	79	85	15	67	32	21	29	94	98	90	02	27
05	66	15	23	83	66	24	98	06	75	60	69	64	25	58	24
84	90	70	29	01	36	90	78	56	40	61	00	58	40	75	37
49	50	30	71	87	38	70	10	80	71	12	54	60	76	62	13
27	53	95	47	04	78	61	85	56	15	71	76	25	31	96	39
56	17	07	83	96	29	88	35	67	86	98	23	95	03	82	62
41	67	05	42	29	18	54	76	71	82	04	81	82	63	00	23

FIGURE 3-6

RANDOM NUMBER TABLE

We continue down the three-digit column, selecting eligible numbers, then shift to the next column of digits, reading as far as necessary to draw a sample of 50 students. Figure 3-7 includes the actual list of 50 eligible, random, three-digit numbers selected.

When we examine the list of 50 numbers, we see that the number 147 has been drawn twice. For a simple random sample, the technically correct procedure in such cases is to count the data collected from the student number 147 twice in the analysis. In actual practice, most researchers simply draw additional cases until they reach the desired sample size and count each case once in the analysis.

An example of the use of simple random sampling instigated by a program review shows the value of this technique. After a program review by OSFA, a large university was required to conduct a sample-based audit of NDSL, SEOG, and CW-S awards. It was determined that to give a confidence level of 95 percent and a reliability of $\pm$ 2 percent, a minimum sample size of 137 per program was necessary.[3] To obtain at least 137 students in NDSL, SEOG, and CW-S, a total sample of 300 student aid recipients was drawn from the university's financial aid file using a random number table. In the resulting sample, there were 163 CW-S recipients, 169 SEOG recipients, and 160 NDSL recipients. In this case, a single sample was able to serve the multiple purposes of reviewing awards in three programs.

INTEGRATING STANDARDS AND MEASURES

Two basic types of standards, overall program standards and operational standards, have been identified thusfar. In practice, the standards applied to financial aid operations can be divided into categories related to the types of measurements being made. For financial aid quality control, four of these categories--dollar error, recordkeeping, accounting, and timeliness--are particularly important.

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[3] See Appendix B for a discussion of the procedure for determining appropriate sample size.

120	547	163	035	124
366	542	585	214	677
519	680	692	721	178
147	248	491	209	534
327	074	735	612	515
111	293	696	380	624
245	222	565	068	690
523	437	013	417	510
029	306	047	457	405
071	428	291	241	147

FIGURE 3-7

SELECTED SAMPLE CASES

Dollar Error Standards

For measures of case error or components of case error which are measured as dollar amounts, standards of accuracy may be defined in terms of ranges. The amount of variation allowed from an absolute standard is termed a tolerance. In some instances it may not be practical to expect complete accuracy to be achieved. Unless otherwise specified by law or regulation, an institution may establish certain tolerance levels within which the pursuit of greater accuracy is not practical. This should be done with caution, however, because the existence of institutional tolerances not specifically authorized by the funding source may result in institutional liability in the event of a program review or audit exception. Even so, the use of judicious tolerance levels may be very cost-effective compared to the effort required to achieve complete accuracy.

Recordkeeping Standards

Standards applied to recordkeeping are generally defined in terms of categorical adherence to formal procedures. Many requirements for financial aid recordkeeping are set out in program regulations and printed in the Pell and Campus-Based Audit Guides. These include requirements regarding maintenance of file copy Student Aid Reports, statements of educational purpose (SEP), financial aid transcripts (FAT), etc. Other requirements may be set by the institution, such as maintaining up-to-date master cards for all aid recipients. The standards for recordkeeping should be categorical--or absolute--in the sense that there is no tolerance for error or departures from standard procedures. Standards for handling files, e.g., removing files for review, adding new materials to files, etc., should be equally rigorous. In computerized systems, data security procedures should be enforced strictly.

Accounting Standards

Accounting standards for Pell Grant and Campus-Based aid are set out in audit guides for the programs.[4] In both, the audit standards are designed to be in

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[4]Audit Guide, Pell Grants, U.S. Department of Education, Office of Audit, Office of Inspector General, June 1981; Audit Guide, Campus-Based SFA Programs, Department of Education, Audit Agency, Office of the Inspector General, June 1980.

accordance with the financial and compliance elements of the Standards for Audit of Governmental Organizations, Programs, Activities and Functions (Revised 1981). In addition, Accounting, Recordkeeping, and Reporting by Colleges and Universities for Federally Funded Student Financial Aid Programs (1981), the "Blue Book," outlines basic guidelines of accounting for Federal programs.

Accounting procedures for non-Federal student aid programs should conform to the same rigorous level of standard accounting practice.

Timeliness Standards

Standards for measuring the timeliness of various activities in the financial aid office can be structured in terms of continuous measures, such as days (with specific tolerance for acceptable delays), or standards can be categorical, with no tolerance for missed deadlines. Financial aid staff must determine what type of standard is most appropriate for each type of quality measure. Some standards for timeliness are set out in the regulations for Federal (or state) financial aid programs. National Direct Student Loan billing schedules are set out explicitly in the regulations, and each government loan program specifies due diligence requirements as to the interval between past due billings.[5] These standards are categorical and must be adhered to precisely in order to maintain program eligibility. Standards for adhering to internal schedules for completing work or maintaining satisfactory rates in processing forms, validations, corrections, complaints, etc. are far more subjective. As discussed earlier, standards for performance ultimately depend on the perceived needs, resources, and goals of the financial aid office, the institution as a whole, and the students being served. Figure 3-8 provides an example of standards and measures.

Frequency of Quality Control Measurement

The frequency of measurement in a quality control system depends upon 1) the frequency and schedule of the activity or process being measured, 2) the resources available for performing the measurement, and 3) external factors which may

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[5] Management of Student Financial Aid (1979), pp. 78-88, provides a lengthy discussion of billing and collection procedures for various Federal financial aid programs.

INSTITUTIONAL QUALITY CONTROL SYSTEM
SAMPLE STANDARDS AND MEASURES

Function: Proper Determination of Pell Grant Award.

Measurement Points: Calculation of Cost of Attendance.
Computation of Award Amount.
Determination of Enrollment Status.

Standards: Adherence to Program Regulations
34 CFR 690 (Sections 690.51, 690.61 - 690.68).

Measures:

- Number of erroneous awards due to improper calculation of cost of attendance
- Dollar error attributable to improper calculation of cost of attendance
- Number of erroneous awards due to improper computation of award amount
- Dollar error attributable to improper computation of award amount
- Number of erroneous awards due to improper enrollment status determinations
- Dollar error attributable to improper enrollment status determinations.

FIGURE 3-8

INSTITUTIONAL QUALITY CONTROL SYSTEM
SAMPLE STANDARDS AND MEASURES

require that certain quality operations be measured at specific times or frequencies. It is important, for example, to conduct QC activities for functions involved in changed policies and procedures, not only to determine if those changes were effective in achieving the desired result, but also to identify any unexpected by-products of the change that create or increase other kinds of error.

The QC steering committee must make the ultimate decision as to the frequency of measurement, insofar as frequency is not specified by regulation. However, the following observations may assist in that decision process.

Overall program error is geared to the yearly academic cycle. Changes in enrollment status, moving off-campus, etc., and substantial changes in students' financial circumstances may mean that significant adjustments in financial aid take place during the course of the academic year. For these reasons, it is most efficient to sample case files for assessing overall case error only once per year. This same logic would apply to any component of the financial aid system which is geared to a schedule where accounts are reconciled on an annual basis.

For other components of the total financial aid system, however, it is important to monitor the quality of work periodically throughout the year. Each time Pell Grants are disbursed, institutions are required to verify students' enrollment status. It is a sound quality control procedure to monitor the methods used to verify enrollment status each disbursement period. Comparison of the accuracy of enrollment status verification procedures may, for instance, indicate that there are more errors made late in the academic year. A finding of this sort would prompt some actions to improve procedures for verifying enrollment status under the conditions which seem to be causing problems as the year progresses.

Quality control samples can also be selected in a way which allows the manager to monitor the work of inexperienced employees. For example, if student workers are given the job of entering certain data into student account records, supervisors may want to review their work closely. When supervisors are reasonably satisfied that the work is being done well, they may relax their supervision and rely upon periodic systematic sampling of completed work to guarantee that performance quality is maintained.

Finally, it is crucial that "front-end" quality control measurement be timed so that error can be caught and corrected before awards are packaged. Quality control for the student application process, i.e., procedures designed to verify the accuracy of application data, will require some type of continuous sampling, or repeated selection of new samples, as new applications are submitted. Even if all applications are submitted to standard procedures designed to minimize error (such as submission of signed tax forms), regular review of samples of new applications will allow the aid office to determine whether the procedures are being adhered to and whether these procedures are working.

DETERMINING OUTPUT REQUIREMENTS

The QC working team should then determine the output requirements. In most systems, output will be printed reports; in highly sophisticated automated systems, they may be screens on CRT terminals. First, all potential report recipients must be identified. This will probably include institutional management, the QC steering committee, cooperating organizational units, and the internal audit function, if applicable. The report recipients should be requested to furnish their specific information requests (such as trends, level of detail, whether exception basis, etc.). The working team should review the information requests for feasibility (i.e., the resources to develop an automated report may not be available) and redundancy (i.e., can a report be done that satisfies two recipients with slightly different information requests). Standard reports should then be drawn for each information request. Figure 3-9 illustrates sample standard reports. When designing reports, it is important to present enough information to pinpoint a specific cause of error (for example, error in cost of attendance may be attributable to out-of-state tuition).

The reports generated should provide an alarm system to readily identify problems so that corrective actions can be taken. Trend analysis to identify potential problems should be conducted on historical data and presented in an acceptable report format.

DESIGNING INCENTIVES TO MAXIMIZE PROGRAM QUALITY

Appropriate incentives must be developed to ensure that the necessary corrective actions are taken when indicated by the QC program. Whenever possible,

SUMMARY REPORT ON STUDY
OF PELL GRANT AWARD DETERMINATION
MM/DD/YY

	Prior Study		Current Study	
	Amount	Percent	Amount	Percent
Number of Cases Tested	NNN	100.0	NNN	100.0
Number of Erroneous Cases	NNN	XX.X	NNN	XX.X
Total Award Dollar Value	NNNNN	100.0	NNNNN	100.0
Dollar Error in Cost of Attendance	NNNNN	XX.X	NNNNN	XX.X
Over	NNNNN	XX.X	NNNNN	XX.X
Under	NNNNN	XX.X	NNNNN	XX.X
Dollar Error in Award Computation	NNNNN	XX.X	NNNNN	XX.X
Over	NNNNN	XX.X	NNNNN	XX.X
Under	NNNNN	XX.X	NNNNN	XX.X
Average Amount of Error	NNN.NN		NNN.NN	

FIGURE 3-9

INSTITUTIONAL QUALITY CONTROL SYSTEM
STANDARD REPORT

DETAIL REPORT ON STUDY
OF PELL GRANT AWARD DETERMINATION
MM/DD/YY

Category of Student	Number of Cases	Dollar Value	Percent of Total Error
Full-Time on Campus (in-state resident)	NN	NNNN	XX.X
Full-Time on Campus (out-of-state resident)	NN	NNNN	XX.X
Total Error	NNN	NNNNN	100.0

FIGURE 3-9 (Continued)

INSTITUTIONAL QUALITY CONTROL SYSTEM
STANDARD REPORT

the incentive should be a positive one. Monetary rewards are not the only form of incentive. Many institutions would find it difficult, if not impossible, to provide monetary incentives. Fortunately, there are other effective ways to reward good performance. Most people go to work at a particular place because of a certain salary, but once on the job they are concerned with recognition. Therefore, incentives should be developed to recognize their contribution to quality control.

Simple praise is often sufficient to recognize the quality of work being done by a receptionist. The sharing of positive results from a telephone survey with the office staff is another way to publicly recognize their combined efforts to provide quality service to students. Recognition should be given for achieving specific goals worked out in advance. The staff should have some input in goal selection, but management involvement and interest in providing recognition are critical. A large operation may have contests among staff members responsible for the same function, such as validating SARs, to see which member has the best rating on a QC case review of their work. Generally, "team" competition is even more effective than individual competition, because it promotes staff unity and peer pressure to be more careful. Some incentives can provide private recognition, such as the use of improved quality control as a factor in staff performance reviews. However, immediate feedback is usually more important.

There are a number of other ways in which managers can reward good performance, and at the same time provide incentives for quality in the future. Some of these techniques are the following:

- Recommend superior performers for institution-paid training or trips to professional meetings
- Provide more important assignments or additional responsibilities
- Write personal notes expressing appreciation for quality work or place letters of commendation and have a copy placed in the employees' personnel files
- Issue certificates of appreciation or make superior performance awards
- Have superior performers accompany their supervisor to higher level meetings or represent them at such meetings
- Allow superior performers to work more independently; where and when possible, allow a choice of work to be accomplished

- Have senior managers stop by to personally compliment staff on quality performance
- Arrange for project team presentations of QC results to senior level management.

Many other possibliities exist for encouraging all staff to perform high quality work. In the final analysis, the form is less important than the fact that something was done.

Individuals must know that their jobs are important and that their efforts are sincerely appreciated. Rewards, whether they be monetary or simple recognition of a job well done, are an important aspect of a successful QC program.

CHAPTER 4

IMPLEMENTING AND OPERATING THE QUALITY CONTROL PROGRAM

As indicated earlier, the quality control program at the institutional level can be as simplistic or as elaborate as the needs and resources available dictate. There is nothing wrong with starting QC activities on a small scale, looking first at the "vital few" errors only, experiencing success in alleviating those errors, and expanding into other less vital errors. For institutions with limited resources or a lack of managerial commitment to quality, this is a preferable way to proceed.

Regardless of the elaborateness of the effort, however, implementation should be preceded by thorough planning. The best intentions can be doomed to failure if proper implementation planning is not a high priority activity. Following QC steering committee discussion and decisions regarding the scope and type of QC program to be conducted, the working team must translate those decisions into the specific processes to be installed. This activity corresponds to step 5 in the QC Cycle shown in Figure 1-1.

A written plan should be developed outlining resources (staff, equipment, and software) required and a detailed schedule for actual implementation. At a minimum the plan should include sections on:

- System Documentation
- Testing
- Staff Communication
- Staff Training
- Data Collection, Analysis, and Monitoring
- Corrective Actions.

In a limited QC program, these elements of the plan may be nothing more than a few sentences of narrative description regarding how the testing will be done, how and when the program will be communicated to the staff, when and by whom the staff will be trained, etc. In more extensive programs, each of these topics may be "mini-plans" of their own, with elaborate detail as to how each facet of the effort will be conducted.

Where implementation is to be phased, this plan also should be broken down by phases. Consideration should be given to phasing according to the award cycle, such as award determination in the fall and disbursement in the spring after completion of second semester payments. This plan should be reviewed and agreed upon by all participating departments.

The remainder of this chapter discusses in general terms the considerations that should be made for each of these aspects of the QC program, both for planning and implementation purposes.

DEVELOPING QC PROCEDURES (DOCUMENTATION)

Detailed procedures should be developed for:

- Case selection (sampling)
- Case review and recording
- Reviewing reports.

Sampling procedures are detailed in the preceding chapter and in Appendix B. References in the bibliography give several examples of case review procedures that could be useful to the QC working team.

Case review procedures must be detailed enough so that a reviewer unfamiliar with all the financial aid regulations is able to complete the task. This should include instructions on filling out the form as well as listing all possible contingencies (e.g., incarcerated students). They should be written in a clear non-technical style. Guidelines for report review should be brief, giving concise descriptions of what the report presents (by column and line, if applicable).

If internal procedures exist for financial aid personnel, these should be incorporated. Procedures included in the OSFA audit guides should also be incorporated as applicable. Figure 4-1 gives an example of procedures for cost of attendance review.

Each procedure should then be combined with related steps to create a process description. Figure 4-2 illustrates a design of the process for determining Pell Grant award computation error.

At this point, the QC working team should have enough information to select a manual, automated, or mixed system. Many institutions are likely to have mixed systems, where sampling and compiling of data are automated, but analysis of data is manual. See Appendix G for additional information on automation.

TESTING

Before beginning the "live" data collection, analysis, and monitoring, each module should undergo a test of the procedures. Attempts should be made to find any errors in the QC program before it becomes totally operational. Testing should also include an examination of the output of a process to determine that the information provided is indeed the information that was requested. This is called acceptance testing. Acceptance testing will usually be reviewed by the financial aid administrator and/or fiscal officer. It is quite possible to have a process developed which is technically correct and not have the desired information on the output, simply because the developer did not understand what was wanted.

In addition to the testing of each process and its output, each should be well documented. A final copy of the manual process or program actually used in production should be kept in usable order. The narrative can often supplement the basic procedures manual. This documentation is important in both manual and automated systems.

COMMUNICATING THE QC CONCEPT TO ALL PARTIES

Once the quality control program has been fully designed and is ready for implementation, it is imperative that all the parties involved in, or affected by, the QC program become acquainted with its basic concepts. Open communications with

INSTITUTIONAL QUALITY CONTROL SYSTEM
SAMPLE COST OF ATTENDANCE
CASE REVIEW PROCEDURES

1. Enter case number from student aid file on upper left-hand corner of form.

2. Enter case type from student aid file on form. Case type must be a combination of campus residency status, state residence status, and enrollment status.

3. If student is in-state, enter NNN for tuition; if student is out-of-state, enter NNNN for tuition.

4. If student lives on campus, enter NNN for room; if off campus, enter $475 (unless incarcerated--see 6).

5. If student has meal contract, enter NNN for board; if no meal contract, enter $625 (unless incarcerated--see 6).

6. If student is incarcerated, enter 0 for both room and board.

7. In left-hand column, enter amounts used in original computation.

8. In right-hand column, note variations by line. Review student aid file, and note in Section C any appropriate comments pertaining to variations.

NN. Check over sheet; make sure all information is recorded, including any comments you wish to make. Sign form in Section D.

FIGURE 4-1

INSTITUTIONAL QUALITY CONTROL SYSTEM
SAMPLE COST OF ATTENDANCE
CASE REVIEW PROCEDURES

INSTITUTIONAL QUALITY CONTROL SYSTEM
SAMPLE DESIGN OF PROCESSES

Function:	Proper Determination of Pell Grant Awards.
Select Cases to Review	• Determine Sample Variables - Residency (Campus and State) - Enrollment Status • Structure Stratified Random Sample (see page B-3) - Sample Size for Each Stratum - Random Start • Assign Cases for Review
Review Selected Cases	• Obtain File - Master Record - SAR • Review Cost of Attendance Calculation - Tuition - Room and Board - Other • Verify Award Computation - SAI - Less Than Full-Time Adjustment - Cost of Attendance Adjustment
Record Results of Case Review	• Identification Data • Results of Review - Amount of Award - Amount of Error (if any)/Error
Compile Results	• By Strata • Overall

FIGURE 4-2

INSTITUTIONAL QUALITY CONTROL SYSTEM
SAMPLE DESIGN OF PROCESSES

the various parties will enable the QC manager to maintain or increase the level of commitment generated when the program was established. This continued commitment is essential to ensure the necessary resources to implement and operate the QC program.

The QC steering committee can be utilized to present the program to all interested parties. The presentations may need to vary in detail depending on the particular audience. For example, the chief administrative officer will be interested in fewer details than the internal auditor. The important point is that all parties have at least a basic understanding of what the QC program will and will not do. This avoids misperceptions, and thus unreasonable expectations of the system, which in turn maximizes the acceptance of the system within the institution.

TRAINING THE PARTICIPANTS IN THE PROCESS

For the QC program to be a success, the users of the system must be trained in its proper use. The QC steering committee can be used to train the QC working team and office staff. A small institution will use the appropriate manager to instruct his/her staff. No matter what the size of the QC program, all individuals involved should be given the opportunity to review the procedures manual and/or detailed plans of the QC program.

It is important that each member of the staff be familiar with all aspects of the QC program, not just those directly affecting him/her. In that way, there will be an awareness that the performance of others, not just their own, is being routinely evaluated. This minimizes the feeling that any one person, rather than the functions they perform, has been pinpointed for review.

BEGINNING THE DATA COLLECTION, ANALYSIS, AND MONITORING ACTIVITIES

The data collection activities should be designed to coordinate with the typical operating cycles within the office. Each type of data collection effort will be determined by the various modules in the QC program. For example, to assure that satisfactory progress guidelines are being followed, the institution must collect the following data for all students, or a sample of students: number of hours of original

enrollment, number of hours completed, grade point average or grades for each course, historical information on past enrollments (transcript), and current satisfactory progress standing (probation, first suspension, etc.). Most of these data are most readily available at the end of academic periods. The historical data should be available at any time (probably in the Registrar's office). Thus, the timing is dictated by when the data are available.

As in data collection activities, monitoring activities are determined by the various modules in the QC program. To monitor the calculation of cost of attendance, a simple random sample must first be selected. Next, the necessary steps in the calculation of the cost of attendance are completed for each case (file) in the sample. Finally, this newly calculated value is compared to the cost information contained in the case. The monitoring activity must be linked to the operational cycle. It is impossible to monitor cost of attendance calculations until that step of the processing cycle is completed, using actual rather than estimated cost information.

The monitoring component of the QC system not only detects error in delivery and management of student aid, but it also provides data on the effect prior corrective actions have had on reducing specific error. Successful corrective actions will indicate a rapid decline in and/or elimination of specific errors or a noticeable increase in productivity. If error reduction or productivity increase is minor, the manager should reassess the corrective action and try to get a better focus on the probable cause in order to design more effective actions. Without such a monitoring and assessment subsystem, the impact of corrective actions on reducing error is more difficult to determine.

Once the initial data collection has been completed, the QC team members or manager compares the results to previously determined standards (step 6 of the QC Cycle in Figure 1-1). If the sample results are within the tolerance limits, the quality of that performance may be accepted. However, if the sample indicates results outside the tolerance limits, the module should be subjected to additional review. The specific problem must be defined and the necessary corrective actions taken. In the case of an automated system incorrectly calculating the Scheduled Award for a Pell Grant, for example, the system should be entirely reviewed to

determine the cause of the error in the calculation and the step(s) creating the miscalculation corrected. This will probably involve the Data Processing Department (Computer Center).

TAKING CORRECTIVE ACTIONS

A basic function of the QC system is to provide information that can be used in developing corrective actions aimed at eliminating error. Corrective actions have two major components that must be fully developed if the QC system is to be truly responsive. These components are:

- A framework for corrective actions decision-making
- A methodology for corrective actions analysis.

Institutions should initiate a set of procedures for deciding when corrective actions are necessary. As a regular part of the QC system, ways to evaluate corrective actions must be established and decision criteria for initiating new corrective actions must be compatible with the decision hierarchy at the institution. The QC decision-making process must be fully integrated into the regular decision-making process at the institution and run from the top administrator down to the operational levels.

The second component needed for the corrective actions process is a methodology for conducting corrective actions analysis. If problems or inefficiencies in the process are indicated by comparing the information collected about the process against standards, then some action is required. Ideally, the information collected as part of the QC function should give a good indication of what type of corrective actions would best solve the problem. Analysis of the results of the comparison and of the probable cause of error provides a starting point for developing ways to correct error. This analysis leads to the management decision as to what corrective actions are needed (step 7 of the QC Cycle as shown in Figure 1-1).

There are two basic types of corrective actions that can be taken when QC results indicate unsatisfactory performance. Mangement can decide between:

- Improvement through better control
- Improvement through breakthrough.

In this context, control involves the resumption and maintenance of an accepted standard or norm. In the process of controlling, managers attempt to identify and eliminate sporadic departures from normal performance. Corrective actions then generally take the form of mechanical actions, usually of short duration and within the existing structure. In general, control activities utilize more impersonal supervision techniques, such as manuals, established procedures, better communication, et al.

Control actions are selected when managers are satisfied with improving control over the status quo, doing the best they can within the existing structure. Many control actions attempt to change attitudes or small aspects of behavior. Two examples of a control action are the initiation of a seminar for applicants to improve forms completion or a training program for processing personnel on the proper computation of need.

There are occasions, however, when no matter how hard the staff try to improve performance, the system seems to defy significant improvement. Working harder will not always result in better performance. Management intervention then becomes necessary to structurally change the system itself if performance is to be improved to the desired level. This type of corrective actions is sometimes referred to as a "breakthrough" approach, targeting upon procedures or activities with potential substantive change. "Breakthrough means a change, a dynamic, decisive movement to new, higher levels of performance."[1] Breakthrough is the creation of necessary change, as contrasted to the prevention of undesirable change, i.e., control. Breakthrough is likely to be a longer term project, because it requires the identification and elimination of chronic obstacles to better performance. Breakthrough or structural changes are best made after sufficient data have been accumulated to establish trends and document the need for more drastic action in

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[1] Juran, J.M., op. cit.

BREAKTHROUGH VERSUS CONTROL

CONTROL

- Hold Status Quo
- Adhere to Standard
- Meet Predetermined Requirements

BREAKTHROUGH

- Movement to New Level of Performance
- Change Standards of Procedure — a New Way of Doing It
- Change in Result

order to achieve the desired results. Special studies and one-time evaluation efforts do not normally provide sufficient justification for breakthrough actions.

Breakthrough requires a high level of management support and personal supervision to be effectively accomplished. Breakthrough must also have a high degree of participation throughout the organization to maximize the creativity required. Control, on the other hand, requires a lower degree of participation and can accommodate a high degree of authoritarianism and still be successful. Thus, control and breakthrough require different strategies, different tools, and frequently different managers.

Both types of corrective actions are vital to the success of any organization. Most of us are more familiar with the control approach, but some additional comments about the breakthrough concept may be useful. There is a specific set of events that must transpire if breakthrough is to be achieved:

- Managerial attitudes must be changed
- Managerial knowledge must be expanded
- Resistence to change on the part of all members of the organization must be overcome.

First, managerial attitudes must be moved from a belief that the present status is okay or that it cannot be improved, to one that the status quo is not good and can and must be improved. Whereas control requires only the identification and elimination of sporadic problems, "fires" to be put out, breakthrough requires a willingness to look for chronic obstacles and reduce or eliminate them. Breakthrough requires a conscious management decision to go ahead.

Second, managerial knowledge must be expanded. Very few managers will purposely ignore evidence that a better way exists to accomplish an objective. Thus, data must be collected and analyzed to determine both the symptoms and the causes of unacceptable performance. Moreover, managers should not automatically conclude that low variance from the existing standard means good performance; the standard may instead be too low. Control can become problematic if managers become so preoccupied with meeting targets that they neglect to keep the target

current. Thus, the information collected must go beyond whether or not variance was within current tolerances and allow management to determine whether performance beyond the existing standard is possible and cost-effective. Alternative means of accomplishing program objectives should be identified and analyzed, even though existing means seem to be producing satisfactory results. Only with awareness of the total spectrum of alternatives and their pros and cons can an informed decision about corrective actions be made.

Third, once a decision to attempt a breakthrough action has been made, a strategy to change behavior within the organization must be developed. Affected parties must be informed of the reasons for the proposed change and be convinced that such a change will be beneficial, not only for the organization as a whole but also for them as individuals. Without such a sense of benefit, resistence to change will be much greater.

Breaking down resistance to change is more difficult in larger institutions. As the size of the organization increases, so does the likelihood that breakthrough efforts will involve the addressing of problems that are interdepartmental in nature, i.e., beyond the direct control of the financial aid administrator, and will require a team effort to be successful. Team efforts frequently fail because of too little involvement by the line personnel responsible for the results. Thus, the broad-based composition of the QC steering committee and working team is even more important if breakthrough corrective actions are to be attempted.

Whereas control-oriented corrective actions involve minor procedural adjustments or additional training in how to follow existing procedures, breakthrough corrective actions consist of more substantive changes. Implementation of a new application process, that has all need analysis forms submitted to the financial aid office for review and correction before submission to the need analysis service as a means of reducing the amount of subsequent correction, would be a breakthrough change at most institutions. Likewise, initiation of a computerized application edit system to supplement or replace manual review of eligibility would normally be considered an attempt at breakthrough.

When corrective actions have been implemented, step 8 in the QC Cycle (Figure 1-1) has been completed. Not all attempts at corrective actions, be they control or breakthrough in nature, will be totally successful the first time. Some may make no noticeable difference, while others will have less impact than expected, and still others will have unexpected side effects, some of which may be more detrimental than the original problem. Thus, there is a continuing need for assessment evaluation and refinement, which will be discussed in Chapter 5.

A checklist for designing and implementing a quality control program may be found in Appendix C.

CHAPTER 5

EVALUATING AND ENHANCING THE QUALITY CONTROL PROGRAM

Evaluation involves judging the worth of an experience, idea, or process. The judgement presupposes standards or criteria. This is the last phase or Task 4 (see Figure 2-1) in the quality control system. Through evaluation, suggestions to enhance a specific QC component or the overall QC program can be detailed. If a quality control steering committee was formed to develop standards, that same group should be utilized to review the results of the QC effort. Future direction is consequently provided through continued involvement of top management. If no quality control steering committee is available, the regular staff should perform this evaluation function.

DETERMINING IF THE SYSTEM IS PROVIDING THE INFORMATION NEEDED TO MONITOR QC

All the parties involved must determine whether or not the system is providing the information needed for monitoring QC. One primary role of a QC system is to identify specific points where errors occur in the process. The information gathered from a QC system should be able to pinpoint where the problems are occurring. In fact, there are two main questions the information should answer: where do the problems occur and how often do they occur? These questions are directly applicable to the three areas of measurement identified in Chapter 3: student data error, institutional processing error, and productivity.

Data collected from the institutional QC system monitoring process should provide information on which items students are making errors, how often those errors are occurring, and the dollar value associated with those errors. Staff resources can then be focused on developing ways to detect and correct those errors before funds are actually disbursed and the detection and correction process becomes more costly.

Institutional procedures are also a source of significant error. Monitoring the institutional processing function is important not only for equity and efficiency reasons, but also because the institution must be fiscally responsible. Measures of error in institutional processing at its various stages will pinpoint where in the process the errors occur.

Measures at various points in the process differentiated by type of error should provide the right kind of information to determine whether errors occur in the eligibility determination, award calculation, or disbursement procedures.

In even the largest institutions, resources are limited. Labor costs are the greatest single item in the office administrative budget; therefore, personnel must be used effectively. Data provided from the institutional QC system on error sources and probable causes should assist the staff in determining whether personnel are effectively targeted to critical error-prone processes. Additionally, information on the timeliness of specific activities or procedures, such as updating the student master record, may indicate a need for more stringent standards, supplemental training, or even the need for additional personnel to be assigned to complete an activity in the required time.

There may be procedures or activities which are being performed manually by all available personnel which continually fail to meet timeliness and/or accuracy standards due to the large volume of work. If all improvements have been made that reasonably can be made given the existing procedures and available operating budget, perhaps the only real improvement would be to automate the function. Where automated procedures fail to meet timeliness and accuracy standards, data from the QC component monitoring this process will assist in identifying probable causes. Changes in input procedures, or even software programs, may be required to improve productivity and accuracy.

DEFINING CHANGES TO DATA COLLECTION

A periodic review should be made of what the QC program is currently providing, to identify specific points where errors occur and to present information that can be used to develop corrective actions aimed at eliminating errors. Then

the parties involved should define what, if any, additional information is desired and if any data collection currently being done can be eliminated. An evaluation of what data are superfluous is just as important as determining what additional information needs to be collected. All data being collected should be reviewed by at least one person and some data may be reviewed by a large number of individuals. Elimination of useless data will streamline the QC program and also reduce the number of data elements to be reviewed, resulting in a more efficient program and a better use of personnel time.

REVISING THE DESIGN OF THE SYSTEM

A decision to alter any part of the quality control program necessitates design changes to the system. A new module may need to be developed or a minor change to an existing module may be all that is required. Whatever the design change, a review of what data are collected and the method of collection must be done. Design changes involve the basic steps outlined in Chapter 3. Changes to the QC program are then tested to be sure that the desired results have been attained.

IMPLEMENTING THE PROGRAM CHANGES

Once the changes have been made and tested, the implementation steps discussed in Chapter 4 must be repeated. Procedures manuals need to be revised to reflect the changes. Those changes must be communicated to all affected participants. Additional training of the QC reviewers may be necessary. Then the revised module is ready and collection, analysis, and monitoring can begin again. Thus, step 9 of the QC cycle shown in Figure 1-1 is reached.

Quality control is a continuous process, not a once-a-year or even once-a-month activity. It must be constantly adjusted to reflect changing requirements. For example, a change in validation regulations may cause a major change in a previous module designed to evaluate the quality of the institution's validation efforts. A new problem may emerge that requires some type of quality control; for example, it may be necessary to take a look at response time to inquiries from perspective students if a complaint is received from another office within the institution. The institution may also want to expand its current QC programs as resources and expertise become more available.

If the quality control program is accomplishing its purpose, the quality of service in the delivery of financial aid should improve and the errors detected should become less critical. Problems will not have the degree of crisis orientation they once had. Unlike the achievement of the goals themselves, however, the QC program is never completed.

A checklist for evaluating a QC program can be found as Appendix D.

APPENDIX A

A SAMPLE FINANCIAL AID QUALITY CONTROL PLAN FOR INSTITUTIONAL USE

APPENDIX A

A SAMPLE FINANCIAL AID QUALITY CONTROL PLAN FOR INSTITUTIONAL USE

The sample financial aid quality control plan is presented in a non-narrative, summary format. This format divides each individual description into similar sections:

- Definition of the function procedure
- Goal of the function procedure
- Activities to be measured
- Quality control measures
- Role of quality control.

The first digit in the format denotes a function such as Pell Grant, College Work-Study, or Office Procedures. The following shows how the basic format should look:

1.00 Definition of Process:

Goal:

Activities To Be Measured:

Quality Control Measures:

Role of Quality Control:

This sample QC plan gives several examples of function procedures that can be monitored in the Title IV programs. It is <u>not</u> intended to be a comprehensive statement of all Federal requirements that should be monitored. Each institution should determine, by assessing its weaknesses, which functions to monitor, at least initially. This plan can also be expanded to include functions not related to Title IV programs such as institutional scholarship and state grant programs. The NASFAA Self-Evaluation Guide and Pell Grant Quality Control Study are excellent resources to help you determine which functional procedures you should monitor.

1. GENERAL PROVISIONS

1.01 At Least Half-Time Status

Process of verifying that recipients of Title IV program funds are enrolled at least half-time.*

Goal:

Accurate verification of at least half-time status.

Activities To Be Measured:

Accuracy of verification at the time of disbursement of Title IV program funds.

Quality Control Measures:

- Percent of recipients that were enrolled at least half-time when disbursement was made.
- Dollars involved for cases less than half-time.

Role of Quality Control:

- Take a simple random sample of the cases (file folders or listing of Title IV recipients) that enrolled. Determine the enrollment status at the time of disbursement of Title IV funds.
- Determine if the recipient enrolled less than half-time.
- Sum the aid to less than half-time students.

*An institution is permitted to use up to 10 percent of its allocation of CW-S and SEOG funds to aid less than half-time students who are otherwise eligible. If the institution utilizes this authority, additional controls are necessary to monitor compliance.

1.02 Satisfactory Progress

Process of determining that a recipient of Title IV program funds is making satisfactory progress as defined by the institution.

Goal:

Accurate determination of satisfactory progress.

Activities To Be Measured:

- Accuracy of determination that a student is making satisfactory progress each academic period.
- Appropriateness of action taken for students deemed not to be making satisfactory progress each academic period.

Quality Control Measures:

- Percent of determinations of satisfactory progress made accurately.
- Percent of appropriate actions taken for unsatisfactory progress.
- Dollars involved in cases inaccurately handled.

Role of Quality Control:

- Take a simple random sample of the student recipients of Title IV program funds during an award period. Determine if the student recipient had maintained satisfactory progress as defined by the institution at the time of the award.
- Determine if the action taken for a student recipient not maintaining satisfactory progress was appropriate as defined by the institution.

1.03 **Not in Default or Owing a Refund on Title IV**

Process of verifying that a student recipient of Title IV program funds is not in default on a Title IV loan or does not owe a refund on a Title IV grant at this institution.

Goal:

Accurate verification that a student is not in default and/or does not owe a refund.

Activities To Be Measured:

Accuracy of verification prior to disbursement of funds.

Quality Control Measures:

- Percent of verification made accurately that student does not owe nor is in default.
- Dollars involved in cases not properly identified.

Role of Quality Control:

Take a simple random sample of the student recipients of Title IV program funds during an award year. Determine if the student recipient was in default on a Title IV loan or owed a refund of a Title IV grant at this institution, at the time of disbursement, and had not made arrangements to repay the loan or no adjustment in the student's grant would recover the overpayment within the award year.

1.0% Acceptance of Award

Process of verifying that recipients of Title IV program funds have signed an acceptance of award and acknowledged conditions governing the award prior to the release of funds.

Goal:

Signed award acceptance and acknowledgement of conditions for every recipient.

Activities To Be Measured:

Accuracy of verification before the funds are released.

Quality Control Measures:

- Percent of verifications made accurately, in that there were signed award acceptances and acknowledgments of conditions prior to disbursement.
- Dollars involved in cases without such documents.

Role of Quality Control:

Take a simple random sample of the student recipients of Title IV program funds during an award year. Compare the date of award acceptance and conditions of acknowledgment to the first date of enrollment (or date of disbursement if after the first date of enrollment) for that award year.

1.05 Statement of Educational Purpose

Process of insuring that recipients of Title IV program funds have a signed statement of educational purpose on file for each award year.

Goal:

Signed statement of educational purpose on file for every Title IV recipient.

Activities To Be Measured:

Presence of statement prior to the release of Title IV funds.

Quality Control Measures:

- Percent of recipients with statement of educational purpose on file prior to disbursement.
- Dollars involved in cases without statements on file.

Role of Quality Control:

Take a simple random sample of the student recipients of Title IV program funds during an award year. Determine if a signed statement of educational purpose for that award year was present at the time of disbursement.

2.0 NDSL

2.01 Statutory Limits

Process of verifying that recipients do not exceed the annual or cumulative loan limits for NDSL.

Goal:

Accurate verification of previous and current loan advances.

Activities To Be Measured:

Accuracy of verification prior to the release of funds.

Quality Control Measures:

- Percent of verifications that do not exceed loan limits.
- Dollars improperly advanced because loan limits were exceeded.

Role of Quality Control:

Take a simple random sample of the student recipients of NDSL for the award year. Compare the annual and cumulative loan advances to the statutory limits.

2.02 Promissory Note

Process of verifying that recipients have signed a current promissory note before any advances are made.

Goal:

Signed current promissory note on file for each loan disbursed.

Activities To Be Measured:

- Accuracy of verification of signed promissory note prior to advancement of funds.
- Accuracy of verification that promissory notes are current.

Quality Control Measures:

- Percent of verifications of current signed promissory notes.
- Dollars disbursed without current signed note.

Role of Quality Control:

Take a simple random sample of the student recipients of NDSL for the award year. Determine if there is a current signed promissory note and that it was signed prior to release of NDSL funds.

2.03 Schedule of Advances

Process of verifying that the borrower always signs for receipt of the funds in the Schedule of Advances portion of the NDSL promissory note.

Goal:

Signature of borrower in the Schedule of Advances portion of the promissory note for each disbursement made.

Activities To Be Measured:

Accuracy of verification prior to the time of disbursement of NDSL funds.

Quality Control Measures:

- Percent of signatures in Schedule of Advances.
- Dollars involved in cases without proper signature.

Role of Quality Control:

Take a simple random sample of the student recipients of NDSL for the award year. Determine if the student recipient signed the Schedule of Advances portion of the promissory note prior to release of funds.

2.04 Exit Interviews

Process of verifying that each recipient has an exit interview before he/she leaves the institution.

Goal:

Exit interviews conducted for all NDSL borrowers scheduled to terminate their enrollment.

Activities To Be Measured:

Conduct of an exit interview prior to each student leaving the institution.

Quality Control Measures:

- Percent of verifications of exit interviews being held prior to the student leaving the institution.
- Dollars involved in cases where exit interview was not conducted.

Role of Quality Control:

Take a simple random sample of the student recipients of NDSL who terminated during the award year. Determine if there was an exit interview and if it was completed prior to the student's departure from the institution.

3.0 COLLEGE WORK-STUDY

3.01 Minimum Hourly Rates

Process to verify that all recipients of CW-S are paid at least minimum wage.

Goal:

Payment of at least minimum wage to all CW-S employees.

Activities To Be Measured:

Accuracy of verification of minimum wage.

Quality Control Measures:

- Percent of verifications of at least minimum wage being paid.
- Dollars involved in cases where minimum wage was not paid.

Role of Quality Control:

Take a simple random sample of the CW-S payroll. Determine if at least minimum wage has been paid throughout the award year.

3.02 Time Sheets

Process to verify that recipients of CW-S funds turn in time sheets, signed by supervisor, and indicating hours worked each pay period and that work was performed in a satisfactory manner.

Goal:

Time sheets available for all time paid to CW-S employees.

Activities To Be Measured:

- Presence of time steets indicating hours worked.
- Presence of supervisor's certification that the student has worked and earned the amount being paid and has performed the work in a satisfactory manner.

Quality Control Measures:

- Percent of verifications of hours worked by student.
- Percent of verifications of supervisor's certification.
- Dollars involved in cases not supported by proper time sheets.

Role of Quality Control:

- Take a simple random sample of CW-S recipients for the award year. Determine if the time sheets for the recipient indicate hours worked.
- Determine if the supervisor certified that the student had worked and earned the amount being paid and had performed the work in a satisfactory manner.

4.0 SEOG

4.01 Undergraduate Status

Process to verify that recipients of SEOG funds are undergraduate students without a baccalaureate degree.

Goal:

Accurate verification of undergraduate, non-bachelor degree status.

Activities To Be Measured:

Accuracy of verification of undergraduate, non-bachelor degree status.

Quality Control Measures:

- Percent of recipients who have verified undergraduate, non-bachelor degree status.
- Dollars disbursed to students who already had undergraduate degrees.

Role of Quality Control:

Take a simple random sample of SEOG recipients for the award year. Determine from admissions and/or registrar records if the student is an undergraduate and does not have a baccalaureate degree.

4.02 SEOG Disbursements

Process to verify that SEOG disbursements are made in equal installments over the award period to each recipient.

Goal:

Accurate verification of equal SEOG disbursements.

Activities To Be Measured:

Accuracy of verification of equal disbursements.

Quality Control Measures:

- Percent of verifications of disbursements made equally.
- Dollars improperly disbursed in unequal payments.

Role of Quality Control:

Take a simple random sample of SEOG recipients for the award year. Determine if the SEOG disbursements are made equally during the award period.

4.03 Award Limits

Process to verify that the annual award limits, as well as prorata limitations, are observed.

Goal:

Accurate verification of award amount within annual limits.

Activities To Be Measured:

- Accuracy of verification of award amount prior to disbursement.
- Accuracy of verification of prorata limitations for programs shorter than the academic year.

Quality Control Measures:

- Percent of verifications of awards within annual limits.
- Percent of verifications of awards within prorata limitations.
- Dollars involved in cases where limits were not observed.

Role of Quality Control:

- o Take a simple random sample of SEOG recipients for the award year. Determine if SEOG award was at least $200 and did not exceed $2,000 for the award year.
- o Determine if prorata limitations were observed for programs shorter than the academic year.

5.0 PELL GRANT

5.01 Cost of Attendance

Process by which the cost of attendance for recipients of Pell Grant funds is calculated.

Goal:

Accurate computation of cost of attendance.

Activities To Be Measured:

Accuracy of the computation.

Quality Control Measures:

- Percent of calculations done accurately.
- Dollars involved in cases inaccurately computed.

Role of Quality Control:

Take a simple random sample of Pell Grant recipients for the award year. Manually compute the proper cost of attendance in effect at the time of calculation and compare to value used to determine the disbursed amount.

5.02 Scheduled Award Computation

Process by which the scheduled award is computed for Pell Grant recipients.

Goal:

Accurate computation of scheduled award.

Activities To Be Measured:

Accuracy of the computation.

Quality Control Measures:

- Percent of computations done accurately.
- Dollars involved in cases inaccurately computed.

Role of Quality Control:

Take a simple random sample of Pell Grant recipients for the award year. Manually compute the scheduled award based on actual enrollment status, SAI, and cost of attendance, using the Payment Schedule that was valid at the time award amount was originally calculated. If award was for 1982-83, adjust for any Social Security or VA Benefits available to the recipient. Compare reconstructed award to the disbursed award amount.

5.03 Validation

Process by which the Student Aid Report is validated according to Department of Education regulations.

Goal:

Accurate and complete validation.

Activities To Be Measured:

Accuracy of validation prior to disbursing funds.*

Quality Control Measures:

- Percent of verifications where validation is accurate.
- Dollars involved in cases not properly validated.

Role of Quality Control:

Take a simple random sample of Pell Grant recipients selected for validation for the award year. Determine if the validation was completed according to the Validation Handbook.

*In some cases, the first disbursement can be made prior to completion of validation. Please see Validation Handbook.

5.04 Award Computation

Process by which the student's actual Pell Grant award is calculated, using the Student Aid Index, the cost of attendance, and the appropriate enrollment status.

Goal:

Accurate award determination.

Activities To Be Measured:

- Accuracy of establishing Cost of Attendance.
- Accuracy of determining enrollment status.
- Accuracy of reading the Pell Grant payment schedule.

Quality Control Measures:

- Percent of sampled cases where latest award amount is confirmed to be accurate.
- Dollar amounts of variance between latest awards and QC computations.

Role of Quality Control:

Take a simple random sample of Pell Grant recipients, both validated and non-validated. Replicate the latest award calculation, verifying all elements of the computation, including determination of enrollment status at the time the award was last calculated. Compare the QC result with the award amount determined earlier.

5.05 Financial Aid Transcript

Process to verify that a financial aid transcript for a current year transfer student is received, indicating the amount of any Pell award disbursed during any prior award period.

Goal:

Presence of financial aid transcript for all transfer students.

Activities To Be Measured:

Accuracy of verification of financial aid transcript for transfer student prior to disbursement of Pell funds.

Quality Control Measures:

- Percent of verifications of financial aid transcripts received prior to first disbursement of funds.
- Percent of verifications of financial aid transcripts received prior to second disbursement.
- Dollars involved in cases without a transcript prior to second disbursement.

Role of Quality Control:

Take a simple random sample of transfer student recipients of Pell Grants for the award year. Determine if a financial aid transcript for current year transfer students was on file prior to first or second disbursement of funds.

6.0 GUARANTEED STUDENT LOAN

6.01 Adjusted Gross Income

Process by which the family's adjusted gross income is determined.

Goal:

Accurate determination of adjusted gross income.

Activities To Be Measured:

Accuracy of the determination prior to completing institutional section of GSL application.

Quality Control Measures:

- Percent of determinations done accurately.
- Dollar value of loan eligibility improperly certified.

Role of Quality Control:

Take a simple random sample of GSL applicants for the award year. Determine if the determination of family adjusted gross income was done correctly.

6.02 Loan Limit

Process to determine loan amount that will not exceed the cost of attendance less expected family contribution and financial assistance.

Goal:

Accurate calculation of eligible loan amount.

Activities To Be Measured:

Accuracy of the calculation prior to completing institutional section of the GSL application.

Quality Control Measures:

- Percent of eligible loan amounts calculated accurately.
- Dollar value of loan eligibility improperly certified.

Role of Quality Control:

Take a simple random sample of GSL applicants for the award year. Determine what the eligible loan amount should be and compare it to the recommended loan amount or "Cost less aid" value entered on the GSL application.

7.0 FUND CONTROL

7.01 Disbursement of Authorized Payments

Process of disbursing student aid funds exactly as authorized.

Goal:

Total agreement between payments authorized by the financial aid office and amounts disbursed by the business office.

Activities To Be Measured:

- Authorizations for payments to be made.
- Disbursements made to financial aid recipients.

Quality Control Measures:

- Percent of disbursements accurately made.
- Dollar amount of disbursements not accurately made.

Role of Quality Control:

Take a simple random sample of Title IV recipients. Compare the payments authorized by financial aid against disbursements made by the business office. Identify the cases where discrepancies were observed.

8.0 OFFICE PROCEDURES

8.01 Telephone Service

Process of responding on the phone to the questions of aid applicants.

Goal:

Respond efficiently to inquiries about the application process and the status of individual applications.

Activities To Be Measured:

- Amount of telephone inquiries.
- Timeliness of answering applicant questions.
- Accuracy of answering applicant questions.

Quality Control Measures:

- Count of telephone calls received.
- Percentage of incoming calls placed on hold.
- Average length of time calls are placed on hold.
- Accuracy of answering applicants' questions determined through monitoring by QC personnel.

Role of Quality Control:

- Independently monitor personnel responding to telephone inquiries to assess accuracy of responses. Concern is with overall accuracy and courtesy of the responders.
- Prepare a list of typical questions asked by callers, as well as appropriate responses. Have QC member phone in these questions to the office and record the accuracy of responses, courtesy of the responder, length of time the call was placed on hold, and length of the entire phone conversation. Concern is with accuracy and courtesy of the responder.

8.02 Turnaround of GSL Applications

Process of completing the institutional section of the GSL application.

Goal:

Complete the institutional section of the GSL application in a reasonable time and forward it to the lender or student.

Activities To Be Measured:

- Number of GSL applications.
- Timeliness of completion of institutional section.
- Timeliness of forwarding completed application to the lender or student.

Quality Control Measures:

- Numeric count of GSL applications received.
- Percent of applications completed in a defined length of time (1 hour, 1 day).
- Percent of completed applications forwarded in a defined length of time.

Role of Quality Control:

- o Keep tally of GSL applications received, by date.
- o Take a simple random sample of GSL recipients for the award year. Compare the date the application was received to the date the school section was completed. Samples should be taken at various times during the award cycle.
- o Compare the date the school section was completed to the date it was forwarded to the lender or student. Samples should be taken at various times during the award cycle.

APPENDIX B

SAMPLING METHODOLOGY

APPENDIX B
SAMPLING METHODOLOGY

In Chapter 3, the methodology for selecting a simple random sample using a table of random numbers was discussed. There are several other methodologies that, under certain conditions, may be more appropriate than simple random sampling. Some of the more prevalent alternatives are presented below, along with the conditions that limit or maximize their usefulness. Also contained in this Appendix is a brief discussion of determining the proper size of a sample.

ALTERNATE SAMPLING METHODS

Systematic (interval) sampling is a method of selection in which cases are drawn from a population at some fixed interval, but where the starting case is selected at random. The following illustrates the use of such a sample:

> For an audit of Pell awards an auditor determined that a minimum sample of 100 awards was necessary. The university being audited had a validation roster containing 1,172 recipients. The audit reviewer divided 1,172 by 100 to obtain 11.72, which he rounded down to the number 11.
>
> Selecting the random number of 3 as a starting point, he selected for review the 3rd name on the validation roster, the 14th name (3 + 11), the 25th name (14 + 11) and so on until he had worked through the entire list.[1]

Often systematic samples are the easiest type to construct. They do not require a complete listing of all cases. In most circumstances, when the cases are ordered at random, or in alphabetical order, the resulting sample is unbiased. Certain methods of ordering or sequencing cases, such as date of loan or size of loan, can introduce implicit stratification into the sample and thereby increase precision.

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[1]Statistical Sampling Handbook for Student Aid Programs, Office of Student Financial Assistance, U.S. Department of Education, forthcoming.

Systematic sampling is not usable when cases are missing from the files or records. Periodic ordering of files or records can introduce bias into systematic sampling. For example, if a particular record system added a new file for every work day, any systematic sample of the files which had '5' as a factor of its sampling interval would result in selection of cases for the same day of the week.

Dollar-unit sampling uses amounts, e.g., award dollars as sampling units rather than individual cases. Another sample from the OSFA Statistical Sampling Handbook demonstrates the value of this type of sample:

> Sampling loans or accounts tends to give equal weight to each loan or account. For many purposes, a one hundred dollar loan should not be counted equally with a ten thousand dollar loan. This is particularly true when the goal of the auditor or reviewer is to estimate dollar amounts of overpayments or discrepancies. One resolution to this problem is dollar unit sampling. Rather than treating loans, grant or recipients as sampling cases, dollar unit sampling uses the dollars involved as the sampling unit. As an illustration, consider an audit review of a university which administered 483 NDSL awards totalling $724,500. The university supplied the auditor with a list of award recipients and the dollar amount of each loan. Because the awards varied greatly in amount, the auditor decided to conduct a systematic, dollar-unit sample. Having determined that a sample size of 142 was necessary to her purposes, she divided 724,500 by 142 to arrive at a sampling interval of 5102. She then selected a random starting point of 1847 in the first interval.
>
> Working her way through the list of loans, she made a running table of the amount of loans on the listing, selecting for review the loan containing the 1847th dollar, the 6949th dollar, (1847 + 5102) the 12051th dollar (6949 + 5102) and so on. Using this method of sampling, each loan had a probability of being selected directly proportional to its size. Thus a loan of $1,000 had twice the chance of being selected as a loan of $500.

Dollar-unit sampling produces unbiased population estimates. It produces more precise estimates of dollar amount population parameters than loan, grant, or recipient sampling given a fixed sample size. It is an effective way of locating large errors clustered in large accounts that are almost impossible to detect by account sampling. Finally, the problems of converting error frequencies into dollar amounts for population projections are avoided. On the negative side, dollar-unit sampling produces less precise estimates of error frequencies in a population than loan, grant, or recipient sampling given a fixed sample size. In many cases, the data on account size required to draw a dollar-unit sample are not available in advance.

Stratified (representative) sampling is selection in such a way that the characteristics of the sample are similar in important respects to the characteristics of the population. For example, in making an income study of aid recipients at the institution, a true sample would approximate the same relative number from each source of funding that characterized the whole population. If the population were 50 percent Pell Grant only recipients, 15 percent Campus-Based only recipients, 15 percent GSL only recipients, and 20 percent Pell and Campus-Based recipients, the sample should include approximately the same proportions in order to be considered representative. Within each subgroup some process of probability (chance) selection is generally used. This process gives the researcher a more representative sample than one selected at random from the entire population, which might be unduly weighted by a preponderance of, for example, Pell Grant recipients.[1]

DETERMINING SAMPLE SIZE

The size of the sample that should be used for measuring the quality of the various aspects of the aid operation depends upon the level of confidence one needs in the accuracy of the measurement. The larger the sample, the more likely that the results of the sample measurement are identical to what would be obtained if the entire population were measured.

Obviously, taking too large a sample defeats the purpose of sampling. Taking too small a sample leaves doubts that the sample is representative of the population. In general, the larger the population, the smaller the percentage that needs to be sampled to insure representativeness. If the population is relatively small, however, the proportion sampled should be relatively greater. Samples of under 30 cases are probably not useful representations of even the smallest population.

Likewise, the more variation within the population, the larger the sample size must be to provide confidence that the sample is representative. If most of the individual values of any given measure are very similar, a smaller sample size can be

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[1] Research in Education. John W. Best, Prentice-Hall, Inc., 1959.

considered adequate than if there is a large range of values present in the population, as would be the case where the presence of error is significant.

Normally, a 10 percent sample (subject to the 30 case minimum cited earlier) is considered sufficient for operations research purposes, which is what QC measurement would be considered by most statisticians. However, if high levels of error are suspected, and thus a broad range of values expected, a larger sampling percentage would provide greater assurance that the results of the sample represented the population.

Readers desiring to learn more about sample size determination are encouraged to consult a basic statistical textbook or seek the assistance of the institutional research staff.

APPENDIX C

A QUALITY CONTROL DESIGN AND IMPLEMENTATION CHECKLIST

APPENDIX C

A QUALITY CONTROL DESIGN AND IMPLEMENTATION CHECKLIST

Step 1 — Propose a QC plan, including resource requirements, to obtain the monetary and personnel commitment from management necessary to implement the program.

Step 2 — Identify the current condition of quality in the financial aid office, determine the quality requirements, and set the level of program quality desired.

Step 3 — Select the appropriate QC approach that will match the resources available and provide the level of program quality desired.

Step 4 — Determine what functions are to be monitored through an extensive review of error-prone points and typical problems.

Step 5 — Develop the standards and measures within which the QC program will function. Integrate them to provide performance tests.

Step 6 — Develop the necessary data collection procedures to obtain the measures desired.

Step 7 — Determine the types of output needed to monitor adherence to quality, to trigger alarm systems within the program, and to identify potential problems before they occur.

Step 8 — Design incentives to maximize program quality.

Step 9 — Develop detailed procedures manuals for the QC program.

Step 10 Communicate the basic concepts of the QC program to all interested parties.

Step 11 Train the users of the system on how to use it.

Step 12 Begin to collect data, monitor the selected functions, and analyze the information results.

Step 13 Implement corrective actions as deemed desirable by the analysis results.

APPENDIX D

A QUALITY CONTROL EVALUATION CHECKLIST

APPENDIX D
A QUALITY CONTROL EVALUATION CHECKLIST

Step 1 — Review the QC program to see if the information gathered pinpoints where the problems occur and how often they occur.

Step 2 — Determine if the QC program is providing information that can be used to develop corrective actions aimed at eliminating student data error and institutional error.

Step 3 — Ascertain if the information provided by the QC program is assisting the financial aid staff in determining whether personnel are effectively targeted to critical error-prone processes.

Step 4 — Define what additional information is desired and what currently collected data can be eliminated.

Step 5 — Design changes to the system to collect the additional information and delete unneeded data elements.

Step 6 — Initiate the changes and test to be sure the desired results have been attained.

Step 7 — Provide additional training with regard to the changes and update the procedures manual.

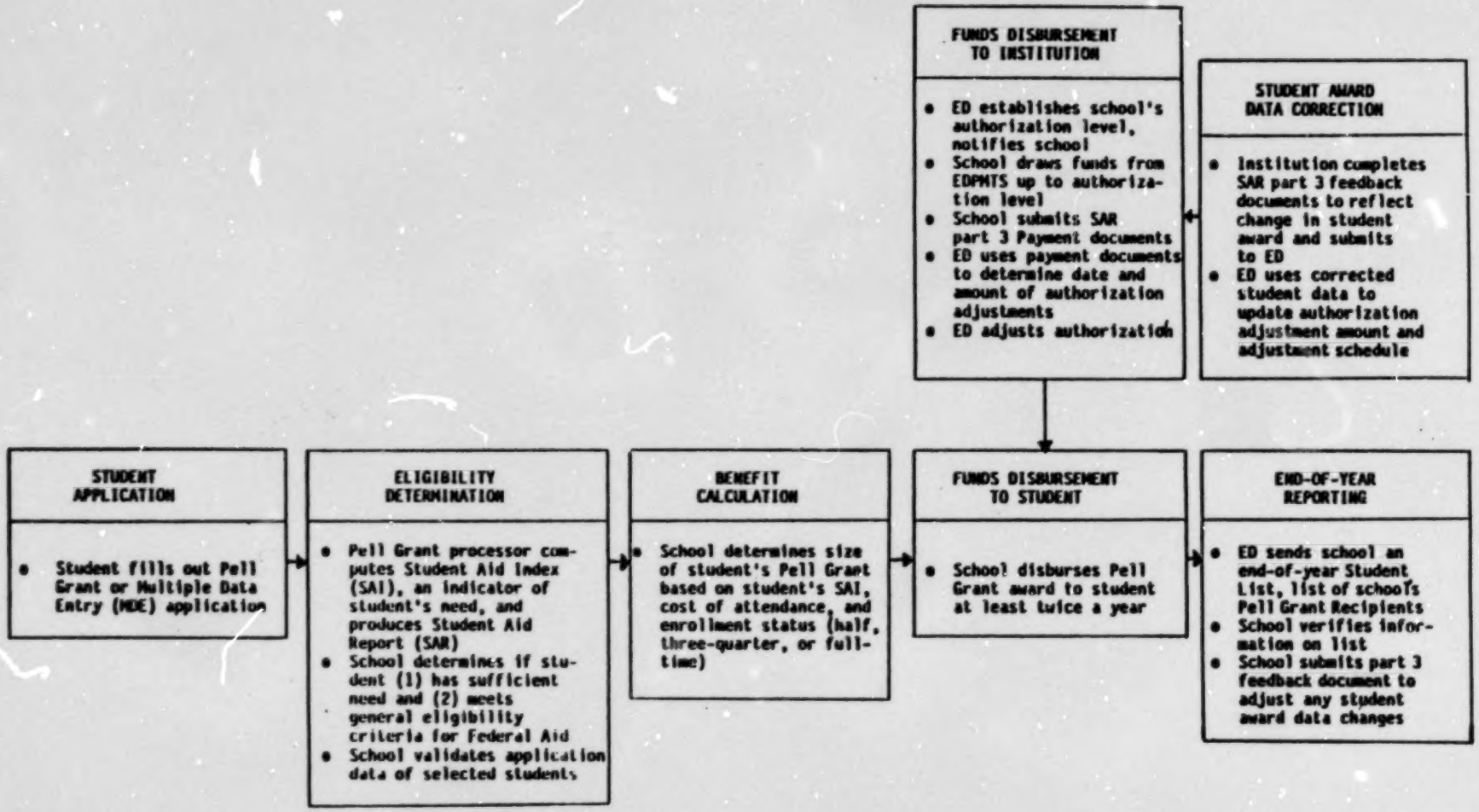
Step 8 — Implement the changes into the actual QC program.

Step 9 — Repeat steps 1-8.

APPENDIX E

PELL GRANT, CAMPUS-BASED, GSL PROGRAMS
DELIVERY PROCESS FLOW CHARTS

PELL GRANT DELIVERY SYSTEM


STUDENT APPLICATION
• Student fills out Pell Grant or Multiple Data Entry (MDE) application
ELIGIBILITY DETERMINATION
• Pell Grant processor computes Student Aid Index (SAI), an indicator of student's need, and produces Student Aid Report (SAR)
• School determines if student (1) has sufficient need and (2) meets general eligibility criteria for Federal Aid
• School validates application data of selected students
BENEFIT CALCULATION
• School determines size of student's Pell Grant based on student's SAI, cost of attendance, and enrollment status (half, three-quarter, or full-time)
FUNDS DISBURSEMENT TO STUDENT
• School disburses Pell Grant award to student at least twice a year
END-OF-YEAR REPORTING
• ED sends school an end-of-year Student List, list of school's Pell Grant Recipients
• School verifies information on list
• School submits part 3 feedback document to adjust any student award data changes
FUNDS DISBURSEMENT TO INSTITUTION
• ED establishes school's authorization level, notifies school
• School draws funds from EDPMTS up to authorization level
• School submits SAR part 3 Payment documents
• ED uses payment documents to determine date and amount of authorization adjustments
• ED adjusts authorization
STUDENT AWARD DATA CORRECTION
• Institution completes SAR part 3 feedback documents to reflect change in student award and submits to ED
• ED uses corrected student data to update authorization adjustment amount and adjustment schedule

E-1

FIGURE 1

PELL GRANT DELIVERY SYSTEM

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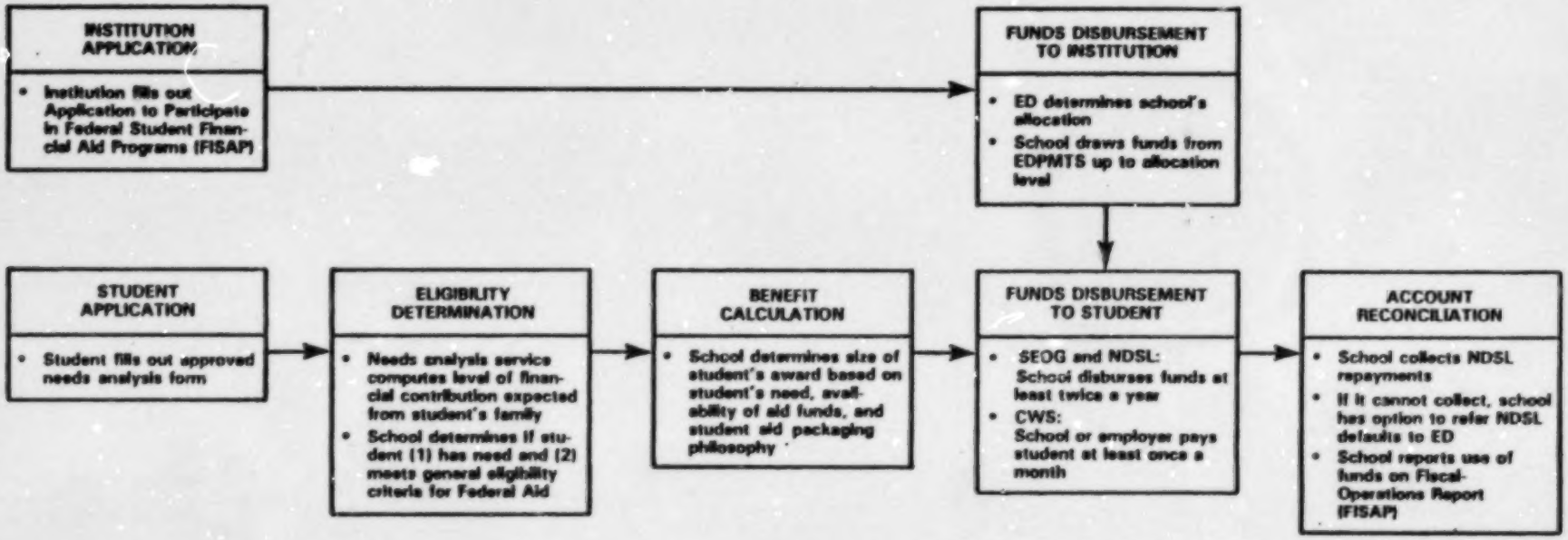
CAMPUS-BASED AID DELIVERY SYSTEM


INSTITUTION APPLICATION
• Institution fills out Application to Participate in Federal Student Financial Aid Programs (FISAP)
FUNDS DISBURSEMENT TO INSTITUTION
• ED determines school's allocation
• School draws funds from EDPMTS up to allocation level
STUDENT APPLICATION
• Student fills out approved needs analysis form
ELIGIBILITY DETERMINATION
• Needs analysis service computes level of financial contribution expected from student's family
• School determines if student (1) has need and (2) meets general eligibility criteria for Federal Aid
BENEFIT CALCULATION
• School determines size of student's award based on student's need, availability of aid funds, and student aid packaging philosophy
FUNDS DISBURSEMENT TO STUDENT
• SEOG and NDSL: School disburses funds at least twice a year
• CWS: School or employer pays student at least once a month
ACCOUNT RECONCILIATION
• School collects NDSL repayments
• If it cannot collect, school has option to refer NDSL defaults to ED
• School reports use of funds on Fiscal Operations Report (FISAP)

E-2

FIGURE 2

CAMPUS-BASED AID DELIVERY SYSTEM

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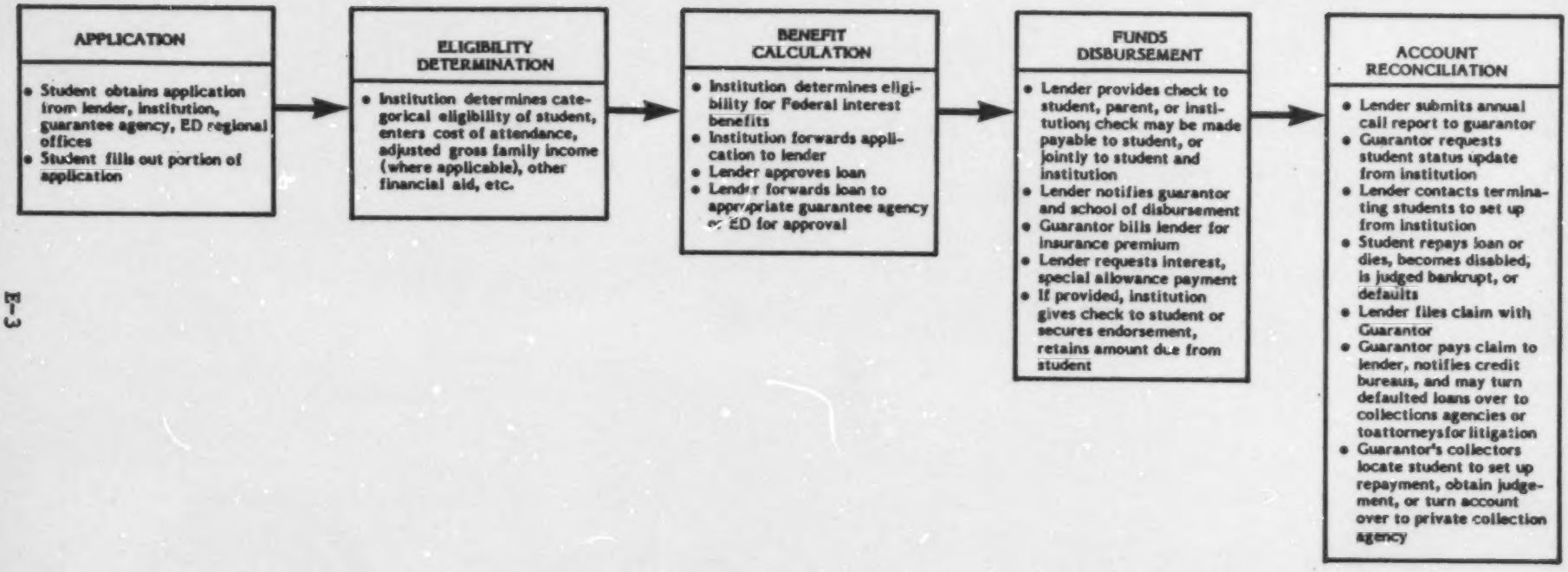
GUARANTEED STUDENT LOAN DELIVERY SYSTEM


APPLICATION
• Student obtains application from lender, institution, guarantee agency, ED regional offices
• Student fills out portion of application
ELIGIBILITY DETERMINATION
• Institution determines categorical eligibility of student, enters cost of attendance, adjusted gross family income (where applicable), other financial aid, etc.
BENEFIT CALCULATION
• Institution determines eligibility for Federal interest benefits
• Institution forwards application to lender
• Lender approves loan
• Lender forwards loan to appropriate guarantee agency or ED for approval
FUNDS DISBURSEMENT
• Lender provides check to student, parent, or institution; check may be made payable to student, or jointly to student and institution
• Lender notifies guarantor and school of disbursement
• Guarantor bills lender for insurance premium
• Lender requests interest, special allowance payment
• If provided, institution gives check to student or secures endorsement, retains amount due from student
ACCOUNT RECONCILIATION
• Lender submits annual call report to guarantor
• Guarantor requests student status update from institution
• Lender contacts terminating students to set up from institution
• Student repays loan or dies, becomes disabled, is judged bankrupt, or defaults
• Lender files claim with Guarantor
• Guarantor pays claim to lender, notifies credit bureaus, and may turn defaulted loans over to collections agencies or to attorneys for litigation
• Guarantor's collectors locate student to set up repayment, obtain judgement, or turn account over to private collection agency

E-3

FIGURE 3

GSL/FISL DELIVERY SYSTEM

BEST COPY AVAILABLE

APPENDIX F

A CASE STUDY OF QUALITY CONTROL CORRECTIVE ACTIONS

APPENDIX F

A CASE STUDY OF QUALITY CONTROL CORRECTIVE ACTIONS

During the past 2 years, the Office of Student Financial Assistance in the Department of Education has been conducting a number of quality control activities related to its own internal operations. Utilizing the Pareto Principle of the "vital few," OSFA has attempted to identify and address some of the more costly, and thus more important, errors being made by its own personnel and develop appropriate corrective actions to reduce these errors. These QC activities have been referred to as "Targets of Opportunity" to denote their focused nature and promise for readily observable results.

Although these QC activities took place at the Federal agency level rather than at an institutional level, the process is quite similar and thus is illustrative of what might be done in an institutional environment. A typical QC sequence of events took place:

- A problem area was identified via the audit process and follow-up analysis
- A sample was specified; in this case all transactions during a specified timeframe
- Units of measure and standards of performance were established, i.e., numbers of errors, numbers of cases with error, and the dollar value of those errors, by several different categories of error type
- A procedure for measurement, normally a recalculation of interest and special allowance payment claims, was determined
- The measurement was carried out and compared to the standard (no error)
- The needed corrective actions were determined and carried out through changes in operating procedure
- The results were evaluated and the cycle repeated by subsequent reviews.

The reports which are abstracted on the following pages represent two separate "snapshots" of error in a particular GSL function identified as problematic. The initial report provided a quantification of the magnitude of the problem and a series of recommendations for alleviating it. The second and third review efforts are not

reproduced in the interest of space, but the fourth review demonstrates the success of the effort in reducing the identified problem.

Note that the reports did not need to be lengthy academic dissertations, but instead were brief, operationally-oriented narratives supported by simple, straightforward quantitative analysis. No higher level statistical methods were required to document the problem and solutions were hypothesized in a common-sense manner. Some corrective actions were obviously controlling in nature, while others were more substantive and approached being breakthrough in character, such as the recalculation of interest in problem 4.

In each review after the first, comparative data were provided to evidence improvement of performance over time, an essential element to any QC activity analysis.

JAN 21 1983

QUALITY CONTROL STUDY OF THE LENDER INTEREST UNIT CONCERNING THE MANUAL PAYMENTS PROCESS

I. INTRODUCTION

As the result of certain Office of Inspector General and General Accounting Office audits, GSL officials were made aware that the Lender Interest Unit (LIU) was not functioning as efficiently as was possible. A preliminary review of the LIU determined that many of the problems lay in the area of manual payments of interest and special allowance to lenders.

In order to identify and resolve these problems, a quality control study was initiated. This study was performed by . . . . . , two GSL employees unaffiliated with the LIU.

The files reviewed in the study consisted of all the lenders recorded in the manual payments voucher book as having received a manual payment for the period of September 1982 through December 1982. The number of lenders paid during this period totaled 131.

Of this 131, we were unable to locate physical files for 11 lenders. An additional 15 physical files contained insufficient documentation for review. The remaining 105 files were reviewed for the purpose of conducting this study.

II. PROBLEMS AND RECOMMENDATIONS FOR RESOLUTION

1. Problem: It was originally decided that the study group would be comprised of those lenders who had submitted a request for payment during the specified time period and had been entered into the log book with a control sheet generated. When we attempted to pull these files, using those lenders recorded in the log book, we discovered that all incoming items, i.e., requests for duplicates, fatal error reports, and mergers were also recorded. We were unable to identify those lenders submitting a 799 for payment via this method.

Suggestion: It is essential to ensure that all incoming items are handled in a timely manner. However, in this case it is suggested that all incoming requests for payment be recorded in a separate log book or an additional column be included in the current log to indicate that this item is a request for a manual payment.

2. Problem: The problems identified in reference to the control sheet are numerous. They are listed as follows:

   a. Control No.: In many instances an item was assigned a control number upon receipt, returned to the lender for a particular reason, resubmitted, and assigned a new number on the original control sheet.

Suggestion: No matter how many times an item is received, it should be handled as a new item. This would entail closing out the

previous entry upon return to the lender. When the item is resubmitted, it would receive a new control number with a new control sheet generated.

b. Date of Receipt: The National Payment Center (NPC) has a numbering system which includes the Julian Date and item number sequence per receipt in their area. This number normally appears on an item when it is received by LIU for manual payment. LIU will insert that number in the area designated for Date of Receipt. This is an error since no one in LIU has access to the NPC numbering system log.

Suggestion: It is suggested that each item contain the actual date received in the LIU (mm, dd, yy).

c. Penalty Date and Lender ID No.:
These items are sometimes incomplete on the control sheet.

Suggestion: All information should be entered on each sheet generated.

d. Quarter Ending: The Ed Form 799, Item (2) Billing Period Ending, provides the lender an area whereby the quarter can be indicated for which payment of interest and special allowance is requested. For purposes of data entry the quarters are numbered 1-4. This area on the control sheet is being completed erroneously with these data entry codes.

Suggestion: For purposes of audit and/or in-house review, it is suggested that this element on the control sheet contain the actual information as to the quarter ending, i.e., March 31, 1982 as opposed to 1-82. This suggestion is made to avoid confusion to a layman who may review a document, see 1-82 in that area and assume that it is translated as January, 1982, which is not an identified quarter. The same mistake would occur when 3-82 is entered. An auditor would assume March, 1982, which is a recognized quarter, when the actual submission would have been September, 1982.

e. In the remaining categories, areas were not always indicated by a check mark.

Suggestion: Each control sheet should be reviewed for accuracy and completeness prior to transferral to the technician assigned.

f. In many cases a multi-purpose item was received. For example: a lender has submitted a 799 for payment and indicated a change of address. The control sheet will indicate assignment to the person responsible for update of the School/Lender file. Upon completion of that task, the item is referred to a different technician in order that the request for payment be processed. The referral and name of the second technician is not entered on the control sheet 97 percent of the time.

Suggestion: An area for this information should be included on the control sheet or when a transfer occurs the information should be entered in the "comments area" on the control sheet as well as the control log, including the date of transfer.

3. Problem: One of the main requirements governing payment of interest and special allowance is accuracy. Sixty percent of the documents received in LIU are incomplete.

Suggestion: Each document should be reviewed prior to being processed. If any essential information has been omitted, the document should be returned to the lender. If an item remains blank which is inessential to the payment of the request, i.e., lender's entity number, the technician should contact the lender telephonically. When this becomes necessary the technician should initial that entry.

4. Problem: A major cause of the monetary errors occurred in the "Interest" section of the 799. It is apparent that the technicians do not recalculate interest upon receipt of a 799.

Suggestion: Using the method indicated by the lender, the technician should recalculate each item of interest submitted.

5. Problem: The monetary errors discovered in the special allowance section can be contributed to misuse of special allowance factors for a given period.

Suggestion: Although programmable calculators are now being used, at present they cannot accommodate the calculation of special allowance submitted for more than one quarter. It is essential that a technical check and recheck be made to ensure that the factors are correct for the period submitted. The technician must also ensure that the factors are applied correctly to the loans made before and on or after 10-1-81.

6. Problem: Many 799's with adjustments of special allowance had no balances reported.

Suggestion: When a lender indicates that there is an adjustment of special allowance, the technician must check to ensure that this area on the 799 has been completed. If the information has been omitted, the form should be returned to the lender.

7. Problem: No explanation for adjustment of origination fees is attached to the 799.

Suggestion: As previously stated, it is the technician's responsibility to ensure that each item on the 799 is complete and accurate. In addition, where there are adjustments of interest, special allowance, or origination fee, an explanation must be provided by the lender.

CONCLUSION

The major problems determined during this review have been identified and discussed individually. Statistics have been provided (see Attachment 1). There were also problems identified that do not warrant individual attention, yet need to be addressed. One of the problems is improper handling of a document upon receipt in LIU. Many of the problems stem from the current filing system. Voucher and document maintenance is inadequate and a method should be devised for maintenance of special allowance factors. All of these problems can be resolved by revision of in-house procedures.

The problems encountered with the tools used to complete this review are numerous. Those associated with the Checklist have been discussed in a separate report (see Attachment 2).

In conclusion, we deem this review essential and very effective as a management tool. It provides information which can be used as a training vehicle. In addition, it provides management an abundance of information which can be utilized to reduce the number of errors (both monetary and clerical) being made in LIU.

cc: Division of Quality Assurance

OSFA QCMIS

GSL SUBSYSTEM

BASELINE STUDY

SUMMARY OF STUDY FOR 09 / 82 (Month Year) to 11 / 82 (Month Year)

Number of Cases Sampled: 105

STEP NUMBER:	1	2	3	4	5	6	
	Receipt Control	Com-pleteness	Accuracy	Duplication	Treasury Verif.	Timeliness	Overall
# of Errors	559	493	74	10	24	52	1,212
# of Cases with Errors	91	63	38	7	24	52	101
Error Rate (# of cases with error divided by total number cases sampled)*	86%	60%	36%%	6%	22%	49%	96%
Error Rate Prior Period	--	--	--	--	--	--	--
$ Value of Errors	N/A	N/A	(+) 426,496 (-) 37,176	(+) 12,221	(+) _____ (-) 30.80	(+) 1,821	(+) 440,539 (-) 37,207
$ Value of Errors Prior Period	N/A	N/A	(+) -- (-) --	(+) --	(+) -- (-) --	(+) --	(+) -- (-) --

*Please note: Error rates taken from samples are estimates only. Confidence levels and intervals must be used when interpreting these results.

F-7

LENDER INTEREST UNIT - MANUAL INTEREST PAYMENTS QUALITY CONTROL STUDY: JUNE 1983 - AUGUST 1983

The fourth internal quality control audit of manual interest payments made by the Lender Interest Unit of the Transaction and Billing Section is complete. The audit team noted an extremely significant improvement in the overall performance of the unit. Attached to this narrative report are statistical breakdowns of the review findings.

Definition of Universe

A list was made of all lender identification numbers for which a payment voucher dated after May 31, 1983 and before September 1, 1983 was present in the unit's voucher book. Vouchers indicating that multiple lenders were involved were not included on the list because this type of voucher now occurs only for payments made as a result of SMA processing. If there was more than one voucher for an individual lender due to his filing a payment request for more than one quarter during the sampling period or due to some sort of supplemental payment, the multiple payments were marked on the list to assure that all payments were reviewed. This list was then used to pull the lender files for the audit.

Definition of Sample

A total of 84 payment requests were included in the universe defined above. The study sample included 100 percent of the payment requests appearing in the sample universe.

Of the 75 lenders appearing on the original pull list, 10 file folders could not be located. A photocopy of the pull list with the missing files marked was given to the unit supervisor. No additional files were presented by the unit in the course of the audit. A file folder was taken from the audit team by the Branch Chief before the file was reviewed, and that file was not returned to the team for the audit. Another folder proved to be a duplicate file, and a member of the LIU staff provided the other folder so the two could be consolidated.

The 11 missing files represented a total dollar value of $10,669,370.24 according to the voucher copies.

General Improvements

The audit team was highly encouraged to find a marked decrease in errors for all areas of the study. There were 40 individual payment documents which contained no error at all under the audit criteria. Errors identified in the control area were mainly due to an operational problem regarding the methods utilized to close out documents after the voucher had been sent to Finance. This problem area is directly addressed by the new unit procedures, and these control errors should not reappear in future audits. Most importantly, the statistical data on actual dollar error shows monetary figures which result from procedural infractions only. The audit team identified no instances whatsoever of technicial miscalculation.

General Appearance of Files

One of the audit team's major concerns after the first review of the unit's activities was the general appearance of the physical file folders. There was remarkable improvement in this area during the third audit period. However, the accomplishments

of that period were lost during the most recent sampling period. It appears that the special efforts required to identify and ship historical documents to SMA were responsible for most of the ground lost in this area. While it is an understandable development, it indicates a potential problem. If such an important aspect of the unit's function is allowed to deteriorate due to a special project atmosphere, it is possible that other gains made since the audit program began could be discarded as easily. Although the appearance of the files is clearly a cosmetic concern, the audit team views the unit's rote attention to each detail of document processing as essential to the development of a consistently effective operation.

Significant Problems

The problems identified in this review were basically individualized departures from procedures and judgement calls on the adequacy of audit trail documentation within some of the files. There were no trouble spots with applications universal enough to assign the designation "significant problems."

Individual Problems

- Lender number 804XXX - The unit prepared three vouchers for this lender. One of the payments was for penalty interest. All of these payments were processed by the unit in order to correct an underpayment situation caused by SMA keying errors.

- Lender number 813XXX - The lender filed for two supplemental payments within the same billing period. This made the review of the file quite difficult due to the complex relationships between billing documents. While it was possible to piece together the activity in the file, the team feels that it would have been more appropriate for the Operations Analyst to document that activity with an explanation greater than "See me if you have questions."

- Lender number 825XXX - The March 1983 billing document for lender number 826XXX was filed in this lender's file folder.

- Lender number 815XXX - This file involved the cancellation of a Treasury check due to the lender's incorrect billing for the March 1983 quarter. While the cancellation documentation was in the file with the corrected billing, the original incorrect billing was not present in the file.

- Lender number 827XXX - The audit team theorized after lengthy review of the file that SMA keyed the lender's March 1982 billing as March 1983. The unit processed a payment trying to work around this error, but the audit trail was almost non-existent. Since it was not possible to either verify the amount paid or to determine the appropriateness of the unit's actions, the team had no choice but to identify the entire amount paid as an error.

- Lender number 810XXX - The Control Sheet in this file indicated that 810XXX was a DCPR Hold Lender. The file did not include documentation that this payment was actually approved by DCPR.

- Lender number 800XXX - A cover letter to multiple billing documents filed by this lender indicated that the bills were submitted in accordance with instructions issued in a 6/83 meeting between representatives of the lender

and representatives of the Department. When the technicians processed the bills, it was noted that the lender had underbilled, but no underbilling letter was sent to the lender. The audit team was unable to determine whether the failure to send underbilling letters was an error or a result of special arrangements made between ED and the lender.

- o Lender numbers 827XXX, 812XXX, 810XXX, and 828XXX - These files appear to involve instances of penalty date violations.

Close-Out of the Review

As in the third audit, the team returned the physical files to the unit with the checklists inside. Summary sheets for each document reviewed will be supplied to the Branch Chief so the unit can be asked to account for errors specifically.

Conclusion

As the statistics were prepared for this final QC review of the first year of internal audits within the Branch, the audit team took great pleasure in noting the truly remarkable improvements exhibited by the Lender Interest Unit when the first audit results are compared to this review. Management must be credited with a good deal of this improvement. This year has seen open support and interest in the unit's activities that far exceed past management involvement in the process. However, the audit team again recommnends a public commendation of the LIU staff for this work.

(Editor's Note: This was done in senior staff meeting with project staff present.)

UNIT ERROR RATE ANALYSIS

AUDIT ELEMENTS	INITIAL AUDIT 09/82 - 11/82	FINAL AUDIT 06/83 - 08/83
Receipt Control	86%	16%
Completeness	60%	1%
Accuracy	36%	3%
Duplication	6%	7%
Treasury Verification	22%	3%
Timeliness	49%	1%
Overall	96%	16%

Total dollar error/initial audit - $477,746.45
Total dollar error/current audit - $ 2,202.68

The interest, pride, and teamwork of the personnel in the unit are the primary reasons for the successful movement of the unit to the highly efficient and responsible operation evidenced by this audit report.

(Signed) _____
Management Analyst

(Signed) _____
Management Analyst

OSFA QCMIS

GSL SUBSYSTEM

SUMMARY OF STUDY FOR 06 / 83 (Month Year) to 08 / 83 (Month Year)

Number of Cases Reviewed: 67

STEP NUMBER:	1	2	3	4	5	6	
	Receipt Control	Com-pleteness	Accuracy	Duplication	Treasury Verif.	Timeliness	Overall
# of Errors	19	18	7	7	2	1	54
# of Cases with Errors	6	1	2	5	2	1	11
Error Rate (# of cases with error divided by total number cases sampled)*	9	1	3	7	3	1	16%
Error Rate Prior Period	5	7	11	78	2	2	87%
$ Value of Errors	N/A	N/A	(+) 2,079.52 (-) -0-	(+) -0-	(+) -0- (-) -0-	(+) 123.16	(+) 2,202.68 (-) -0-
$ Value of Errors Prior Period	N/A	N/A	(+) 153.27 (-) 757,921.95	(+) -0-	(+) 197.54 (-) -0-	(+)	(+) 1,350.81 (-) 757,921.95

*Please note: Error rates taken from samples are estimates only. Confidence levels and intervals must be used when interpreting these results.

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OSFA QCMIS

GSL SUBSYSTEM

SUMMARY OF STUDY FOR 09 / 82 (Month Year) to 08 / 83 (Month Year)

Number of Cases Reviewed: 335

STEP NUMBER:	1	2	3	4	5	6	
	Receipt Control	Com-pleteness	Accuracy	Duplication	Treasury Verif.	Timeliness	Overall
# of Errors							
# of Cases with Errors							
Error Rate (# of cases with error divided by total number cases sampled)*	9%	1%	3%	7%	3%	1%	16%
Error Rate Prior Period**	86%	60%	36%	6%	22%	49%	96%
$ Value of Errors	N/A	N/A	(+) (-)	(+)	(+) (-)	(+)	(+) (-)
$ Value of Errors Prior Period	N/A	N/A	(+) (-)	(+)	(+) (-)	(+)	(+) (-)

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*Please note: Error rates taken from samples are estimates only. Confidence levels and intervals must be used when interpreting these results.

**This statistical chart reflects only the percentage of error rates for the purpose of making a comparison of the results of the initial audit against the results of the final audit for the period indicated.

APPENDIX G

SPECIAL CONSIDERATIONS FOR AUTOMATING QUALITY CONTROL FUNCTIONS

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In most respects, the concepts of quality control are the same whether the financial aid operations are automated or manual. The processes of designing, developing, implementing, and evaluating a QC system are identical. Only the actual methodology varies, and even there the difference is more form than substance.

ADVANTAGES OF AUTOMATED QC

Being able to automate some or most of the QC function (some aspects do not lend themselves to automation) has some very significant advantages to the institution.

Institutions which can support computer-assisted quality control have an enhanced capacity to provide accuracy and timeliness to the delivery of student aid. There are several advantages to automated QC, including:

- The ability to obtain applicant data from secondary sources rather than recollecting and re-entering the information, which introduces an additional opportunity for error in reporting and keying--data exchange with the Pell Grant program, ACT, CSS, or a state agency, as well as with other data systems within the institution, reduce the potential for this type of error.

- The capacity to rapidly check the data to be used, regardless of source, for logical character and consistency--such edits include alpha-numeric and range checks to determine that the data on hand are logical for the type of information expected in specified fields, as well as edits that test the consistency of data like adjusted gross income and taxes paid, liquid assets and income from interest and dividends, and household size and number of exemptions.

- The capability to quickly make a variety of calculations accurately and consistently, including table look-ups for such data as standard income tax, cost of attendance, Pell Grant Scheduled Disbursement, etc.

- The opportunity to verify data more frequently and for much larger samples, even the entire population, than is practical to attempt manually.
- The ability to update data, either through electronic interface or applicant reporting, and almost instantly recompute eligibility and award size for subsequent disbursement periods.
- The capacity to easily monitor staff performance for both accuracy and timeliness, through edit exception counts, elapsed time data checks, "signed" update transactions, and exception listings.

As mentioned earlier, not all QC activities are suitable for automation. Testing the performance of the telephone answering function to determine the pleasantness of the receptionist, the timeliness of the answer and any needed referral, or the accuracy of the information provided does not, for example, lend itself to computer assistance.

There are other QC functions that lend themselves to automation, but in a given set of circumstances, automation may not be a cost-effective approach to use. For example, a complex program or set of programs to perform an involved file match once a year may require more resources to develop and run than a manual process for a sample of the population. A more effective approach might be a computer-generated list of error-prone cases for manual review and resolution.

Thus, one of the early decisions in the QC planning and design phase is the extent to which the computer should be used to facilitate the QC program.

TYPES OF AUTOMATED QC

There are two basic types of quality control activities associated with an automated financial aid system:

- QC features built into the regular production functions of the system
- Specialized QC functions developed as a component of the processing system.

Each type merits a brief description.

Production QC Capability

Any well-designed processing system will have a number of quality control features built into its normal operation. These features include all those elements that prevent, minimize, or identify errors. Included are such things as:

- Data entry edits, including range and alpha-numeric checks, relationship, and other substantive edits that either prevent the entry of erroneous data or identify potentially inaccurate data which enter the system.
- Program run statistics, including comprehensive control totals, that monitor the operation of the software, identify the source of the run input, number of records read in, number and types of documents produced, the number of records read out, and the location of the run output.
- Processing edits, that reject or identify data which passed the data input edits but which were not acceptable to the internal edits of the particular processing program (for example, a record which failed a sequential date check).
- Automatic or manual "hold" capabilities that prevent questionable records from being processed until the questions can be resolved.
- A variety of security features, such as those restricting unauthorized persons from updating files, automated back-up generation to prevent loss of data, transaction files that permit reconstruction of previously processed files that have been "lost" or damaged, as well as those that provide an audit trail of all transactions.

These features are fairly standard to most processing systems and will be found to some degree in all professionally developed software.

Specialized QC Applications

In addition to the traditional safeguards against bad data and processing errors, there are a number of specific QC functions that can be added to most processing systems. Some of the more common specialized applications are:

- A program to match applicant financial data against a secondary source, such as a file of data separately keyed from 1040 forms;
- A program to match aid recipient records against current registration to determine enrollment status or against academic transcripts to determine compliance with satisfactory academic progress.

- A program that matches Title IV applicants against the defaulted loan file or the institutional accounts receivable file to verify the absence of disqualifying liabilities.

- A program that matches students scheduled to graduate at the end of the enrollment period with NDSL loans outstanding, for identification of those in need of an exit interview.

- A program that verifies the continued eligibility for specific aid programs by comparing specified demographic data in the recipient record with more current secondary data sources, i.e., registration file, student accounts receivable, etc.

- A program that computes the Pell Grant award in lieu of or in confirmation of manual calculations done in the financial aid office.

Production QC and specialized QC are not mutually exclusive, as the above examples might imply. In other words, computation checks, matches against secondary data sources to verify primary data or confirm eligiblity, etc. can also be contained in production programs as well as the specialized QC programs. Likewise, most specialized programs will have checks (edits) for bad data. They will tend to focus, however, on eligibility verifications and data validations.

The list could go on, but the point has been adequately made; there are many possible ways of improving quality through automation, separate and apart from any formal QC program. Automation can be a great help in that regard as well, however. The automated selection of QC samples for various performance tests, for example, makes such activities more easily accomplished. That assistance is furthered by a capacity to recompute eligibility under present circumstances and compare the result against the previous computation, identifying the exceptions. The possibilities are limited only by the creativity of the user and the technical capability of the systems personnel assigned to the financial aid processing system.

RECOMMENDATIONS FOR THE DESIGN OF AUTOMATED QC CAPABILITIES

There are a number of suggestions that may be useful to the institution which is just developing an automated financial aid system, or which wishes to add a QC component to an existing processing system.

Build in Flexibility

Flexibility is a key factor in any data system, but is particularly important in financial aid processing systems. Because of the constant change in the laws, regulations, and procedures governing aid administration, financial aid systems will present a continual maintenance problem unless they make extensive use of software which is parameter or table-driven and uses control record options. Almost by definition, computer programs providing QC support must be equal in flexibility, if not more so, as the processing system itself. Not only must the QC software be easily adaptable to accommodate changes in the aid progams and delivery systems, but also must be adaptable to ready modification as the needs of the QC program change. Such features as tolerance levels and sampling percentages that can be adjusted by the user without programmer support are essential to effective quality control. Edits that are table-driven rather than hard-coded make the task of maintaining processing software much more practical. Likewise, a report program with table-driven selection capabilities can prove to be very valuable for generating ad hoc QC listings.

Conduct Comprehensive Testing

The importance of testing QC procedures before implementing data collection and analysis activities is obvious, even when conducting performance tests manually. It is even more critical, however, in an automated environment. During manual review, inadequacies and erroneous routines are usually discovered very quickly by experienced personnel. Automated processing, even with adequate internal controls, requires comprehensive testing to assure that the desired results are being achieved. Otherwise, if no human replicates the logic process and the results are not so unreasonable as to attract attention, errors can be made which will distort the QC results. An inadequately tested system can allow improper activities to go unnoticed and may even result in inappropriate corrective actions being taken.

SUMMARY

Quality control efforts can be greatly enhanced by automation. Data quality improvements on the front end, automated verification during processing, and after-the-fact performance testing can all combine to create a more accurate and timely delivery of student aid dollars.

APPENDIX H

SELECTED ANNOTATED BIBLIOGRAPHY

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SELECTED ANNOTATED BIBLIOGRAPHY

HIGHER EDUCATION MANAGEMENT

Baldridge, J. V., and Tierney, M. L., New Approaches to Management: Creating Practical Systems of Management Information and Management by Objectives. San Francisco: Jossey-Bass, 1979.

Proven strategies for implementing successful management information systems and management by objectives are identified based upon the evaluation of the EXXON-sponsored Resource Allocation on Management Program (RAMP). This program was designed to bring sophisticated management practices to small and medium-sized colleges, to consider practical strategies for designing information systems, and to relate management information to financial allocation decisions.

St. John, E.P., Public Policy and College Management: A Study of Selected Developing Colleges and Universities. New York: Praeger, 1981.

Case studies of five Title III-funded colleges and universities are used to develop a management intervention model. The model has direct implications for institutional management and planning and for state and federal programs designed to improve college management systems, automated management information, management training, and institutional change strategies. The case studies are used to illustrate the ways these practices can be improved.

MANAGEMENT

Bleuel, William H., and Patton, Joseph D. Jr., Service Management: Principles and Practices. North Carolina: Instrument Society of America, 1978.

The book describes the basic principles and objectives of service management. It includes fiscal and manpower elements in service management, managing service operations, inventory management, service support, and the basis for control of the service function. The aim of this book is to lead to better decisions abo[illegible] direction and operation of the service function.

Drucher, P. F., Management: Tasks, Responsibilities and Practices. New York: Harper and Row, 1974.

Comprehensive handbook for today's manager which outlines the tools an effective manager requires as well as the tasks and responsibilities. A discussion of the Japanese managerial style suggests it as an excellent resource for individual managerial development.

Juran, J. M., Managerial Breakthrough. New York: McGraw-Hill Book Company, 1964.

Defines the manager's role as either breaking through to new levels of performance or holding (controlling) the resulting gains. The author attempts to describe a universal sequence of events by which a manager achieves breakthrough and control, and how a manager can use these sequences to perform more effectively.

Vandeven, A. H., and Ferry, D. L., Measuring and Assessing Organizations. New York: John Wiley and Sons, 1980.

This book is directed to the professional operations analyst and assumes a basic knowledge of statistical methods and research techniques. The authors' applications of these techniques to planning and control could be useful in the financial aid office.

STUDENT AID PROGRAMS

National Association of College and University Business Officers, Management of Student Aid. Washington, D.C.: 1981.

NACUBO's manual outlines the student financial aid process from the institutional perspective. It also presents descriptions of financial aid and business office activities including needs analysis, packaging, collection on loans, disbursement, accounting, and recordkeeping. A good resource book for developing measures and standards.

National Association of Student Financial Aid Administrators, Institutional Guide for Financial Aid Administrators (Fifth Edition). Washington, D.C.: 1982.

The NASFAA guide may be the best place to start in planning an institutional QC system. In a check list format the guide asks specific questions concerning legal requirements, adherence to good administrative practices, and efficiency in operations. Where applicable it cites legal references. Answering the questions will highlight weaknesses in current practices and identify points for QC implementation.

Office of Student Financial Assistance, U.S. Department of Education, The Blue Book: Accounting, Recordkeeping and Reporting by Post-Secondary Institutions. Washington, D.C.: 1981.

The blue book details procedures for fiscal administration of SFA programs. An excellent Business Office and Bursar reference which includes suggested chart of accounts, journal entries and "T-Accounts."

Office of Inspector General, U.S. Department of Education, Audit Guide: Pell Grants. Washington, D.C.: 1981.

Office of Inspector General, U.S. Department of Education, Audit Guide: Campus-Based SFA Programs. Washington, D.C.: 1980.

The audit guides are primarily written for the auditors of student financial aid programs. They are an excellent source of standards for accounting and recordkeeping that should be used for an institutional QC program. The guides contain useful program information and references.

Office of Student Financial Assistance, U.S. Department of Education, The Business Officer's Guide to Student Aid. Washington, D.C.: 1981.

This series of five monographs deals with the Federally funded student aid programs. These publications are written more for the business officer than the financial aid administrator. For the most part, this information is also found in "The Blue Book," which is more comprehensive but less easily read.

National Association of Student Financial Aid Administrators, A Handbook for Use in the Preparation of Student Expense Budgets. Washington, D.C.: 1977.

This book is the product of a national student expense budget conference sponsored by NASFAA. Includes suggested procedures for developing student budgets, recommendations for dealing with unique items and different types of students.

QUALITY CONTROL IN A SOCIAL SCIENCE ENVIRONMENT

Office of Student Financial Assistance, U.S. Department of Education, Quality Control Guide. Atlanta, Georgia.

Outlines standards, QC procedures, and measures used in an OSFA regional office. Many of these procedures are applicable to the institutional aid office.

Welfare Management Institute, U.S. Department of Health and Human Services, How They Do It: Use of Error Profiles and Management Controls for Improving Program Operations in West Virginia-AFDC. Washington, D.C.: 1980.

Welfare Management Institute, U.S. Department of Health and Human Services, How They Do It: A Comprehensive Development Program for AFDC in Oregon. Washington, D.C.: 1980.

These documents profile two successful implementations of corrective actions to reduce error rates in state administration of AFDC. They also serve as examples of two techniques (e.g., staff training, identification of likeliest error via statistical methods) that could be applied at institutions with large case loads.

Office of Management and Budget, Integrated Quality Control System for AFDC, Food Stamps, Medicaid. Washington, D.C.: 1979.

Details possible sampling methodologies for integrating AFDC, Medicaid and Food Stamp case review. Most applicable to large institutions.

Social Security Administration, U.S. Department of Health and Human Services, AFDC Quality Control Manual. Washington, D.C.: 1980.

Food and Nutrition Service, U.S. Department of Agriculture, Food Stamp Program: Quality Contol Subsystem. Washington, D.C.: 1980.

Step-by-step procedure manuals for Food Stamp and AFDC quality control case reviews.

STATISTICAL SAMPLING

Cochran, William G., Sampling Techniques (third section). New York: John Wiley and Sons, Inc., 1977.

A comprehensive textbook of sampling theory as it has been developed for use in sample surveys. Requires a sound knowledge of mathematics and statistics. Includes exercises after each chapter.

Kish, L., Survey Sampling. New York: John Wiley and Sons, 1965.

Textbook with exercises. More a mathematical reference for statisticians, but covers virtually all sampling problems. Author a professor of sociology and a program director of the Survey Research Center, University of Michigan.

Office of Student Financial Assistance, U.S. Department of Education, Statistical Sampling Handbook for Student Aid Programs, (A Reference for Non-Statisticians). Washington, D.C.: (To be Published in 1984).

An introductory manual on statistical sampling written for the non-statistician. Includes three case studies applying sampling to student aid.

Stephens, Kenneth S. Volume 2: How to Perform Continuous Sampling (CSP). Milwaukee: Amercian Society for Quality Control, 1979.

A 70-page booklet describing continuous sampling plans. The booklet includes the selection of various types of plans, determining parameters, operating the plans, and evaluating the performance of the plans. A brief introduction to acceptance sampling is included. This booklet is volume 2 in The ASQC Basic References in Quality Control: Statistical Techniques.

QUALITY CONTROL

Burr, I. W., Statistical Quality Control Methods. New York: Marcel Dehker, Inc., 1976.

The author assumes some knowledge of statistics and calculus. (They do provide a "refresher" chapter on statistics.)

Textbook approach to the application of statistics to quality control. Emphasis more on sampling than quality control, limiting usefulness of book to QC system development for an institution.

Caplan, Frank. The Quality System. Pennsylvania: Chilton Book Company.

A management oriented description of the activities required to develop and operate a quality system. It describes the quality system as composed of nine subsystems, covering the entire life cycle of the product, from product design and development through testing, manufacture, marketing, delivery, customer use, and field service. Each subsystem contains a number of elements, for a total of 103 elements.

Caplen, R. H., A Practical Approach to Quality Control. London: Business Books, 1969.

A good introduction to quality control written for the layman. It begins with the basic stages of quality control as applied to household repairs and builds stages through the design and implementation of a quality control system.

Crosby, P. B., Quality is Free: The Art of Making Quality Certain. New York: McGraw-Hil', 1979.

The author, Vice President for Quality Operations for ITT, has written this book based on his experiences and the need not to repeat his mistakes. Although the focus is on manufacturing QC, "white collar" QC is also discussed. Many of the concepts presented, such as management, self-evaluation, etc., are applicable in the institutional financial aid office.

Feigenbaum, A. V. Total Quality Control. New York: McGraw-Hill Book Company, 1961.

This book attempts to provide an in-depth review of quality control. The book is organized to describe the scope of quality control; the management of quality control, its technology, both engineering and statistical, and its applications; and the training of staff to accomplish quality control.

Grant, Eugene L. and Leavenworth, Richard S., Statistical Quality Control (Fifth Edition). New York: McGraw-Hill Book Company, 1980.

A manual dealing primarily with various types of acceptance sampling systems and procedures. It includes numerous examples and descriptions of actual cases from a number of industries. The author views statistical quality control as a kit of tools which may influence decisions related to the functions of specification, production, or inspection.

Halpin, J. F., Zero Defects: A New Dimension in Quality Assurance. New York: McGraw-Hill, 1966.

A "unique approach" to quality control. The goal of this approach is to provide incentives for all employees to do the job right the first time. Can be applied to any situation and has been done in educational organizations.

Juran, J. M., editor-in chief, Gryna, Frank M. Jr., associate editor, Bringham, R. S. Jr., associate editor. Quality Control Handbook (Third Edition). New York: McGraw-Hill Book Company, 1979.

The classic reference for managers, supervisors, and engineers. Has 52 sections and 42 authors. Consists of several broad groupings of quality control know-how, including managing the quality function, statistical methods, and industries and processes. "Managing the Quality Function" discusses the attainment of quality in any industry, product, or process. "Industries and Processes" summarizes how quality is attained and maintained in 20 leading industries. Also includes a section on basic concepts.

Juran, J. M. and Gryna, Frank M. Jr., Quality Planning and Analysis. New York: McGraw-Hill Book Company, 1970.

A textbook for preparing managers to plan the quality function. Describes the critical interfaces between the quality function and the other major company functions. Includes chapters on statistical techniques and actual case problems. Contains frequent references to Quality Control Handbook.

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